

Intervening in the dynamics of centrality through two parallel roads in Maputo, Moçambique

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Thesis submitted to partial completion of the degree:

Master of Urbanism and Spatial Planning
European Master of Urbanism

August 2009



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'Bem Vindo ao Nosso Mundo', City wide spread painted advertising for Moçambique's 2M beer. What you see is only a fraction of the full advertising as if the beer is the generator of Moçambique's colorful and joyful society.

Chapter 1. Bem Vindo

This work is the fruit of a cross breeding of interest, opportunity, experience, momentum and Moçambican kindness.

Interest in the conditions of a country that after achieving independency has been trying to form its identity and seems to be accomplishing this as the colonial era drifts further and further away. After coping with colonizers for so many years, the Moçambican people are more and more aware of their capabilities and qualities which they no longer are allowing to be exploited as it used to be. Hopefully some useful insights and inherently hidden qualities can be brought up to the surface in order to stimulate as much as possible this emerging country in addition to acquiring unknown knowledge ourselves that can be set to use in other contexts. As a sort of intellectual export product of Moçambique in the 21st century.

Opportunity since the KULeuven and VLIR offer possibilities, which in our own learning path become opportunities that need to be taken. KULeuven is worldwide extremely well connected and creates a global capacity in the field of human settlements and urbanism that brings the disciplines to a higher level, intellectually as well as practically. VLIR as an organization not only offers the necessary funding to be able to set our feet outside the limits of our country, but also helps

us, prepares us, monitors us, secure us in this for many step into the unknown.

Experience, although little, is part of the reason why this work was possible. The time frame of an urbanism thesis, few months, is very small and requires the support that KUL and VLIR offer, but to be able to be efficient, experience is a welcome base to build on. Previous encounters with foreign conditions and the method of acquiring information through an alien network in which we have to enter helps to recreate this work flow and acquire information more easily.

Momentum is the right word for the present state of urbanism in Maputo and Moçambique, where knowledge that has been processed from before the independency and built up after, is starting to reflect the fact that urbanism is becoming a true discipline, yet still needing a lot of capacity investment. This is especially true for understanding relations in the city that have never been investigated before for which outsider experience is practically useless. Understanding the present condition requires to take on a certain specific theme and task and starting from work in the field and building up a knowledge around it that can later on be continued, improved, altered, corrected, but most importantly learned from as banal as the topic would



Map 1. Overview of Africa

seem. Momentum is the right word because Moçambique have passed the point of skepticism about general planning and organizations in and from the city are more and more formalized and institutionalized and although politics is still a huge mountain to climb, there can be a healthy optimism about the implementability of urbanism and planning products.

The kindness of the Moçambicans at least deserves a separate paragraph. Moçambicans have a natural welcomeness which characterizes them and creates a transparency from which it is easy to understand their logics and way of living. Showing the same transparency and therefore embracing this kindness, pays off and makes the Moçambican people accept you in their inner most circles, no matter how or in whatever way you differ from them. (thank you, family Massimbe-Uamusse)

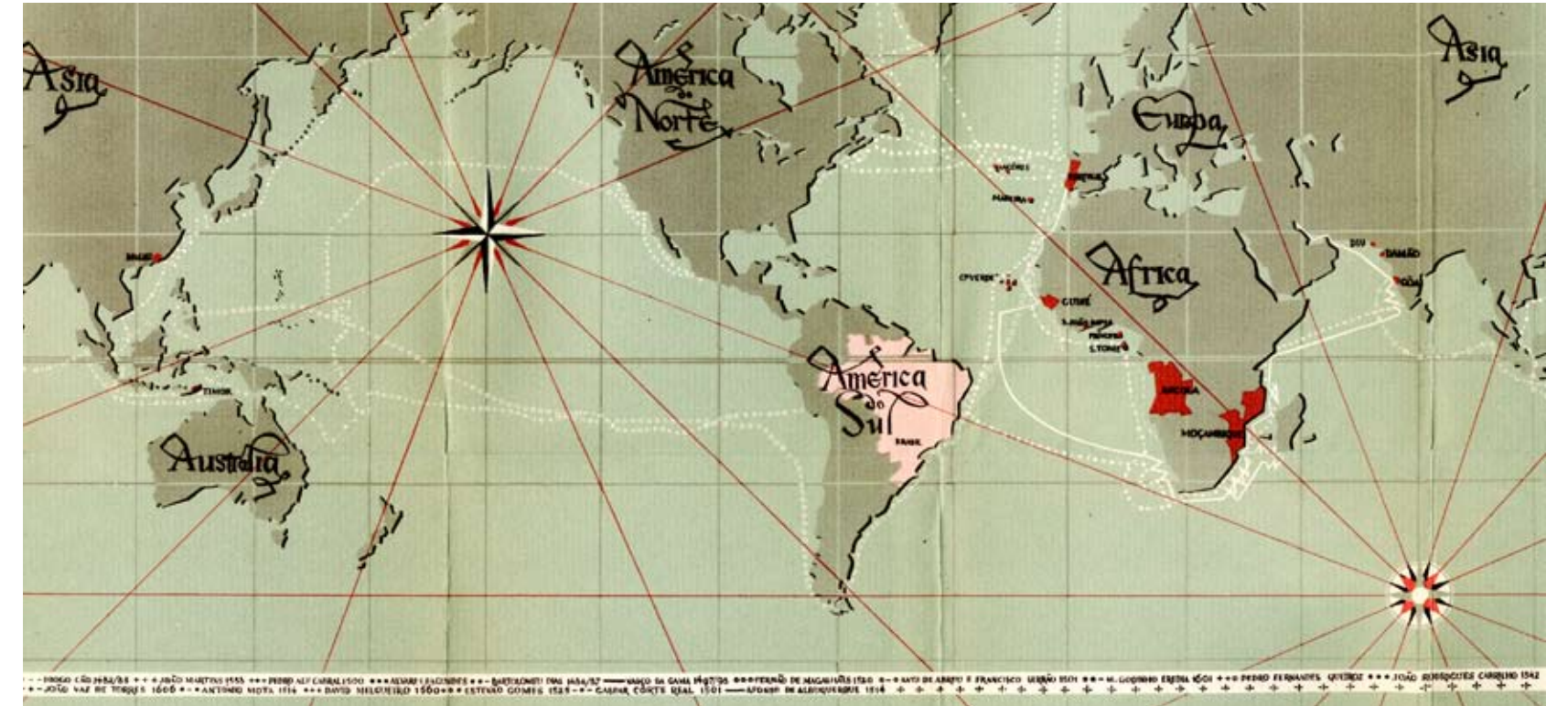
Moçambique is located in southern Africa on the east coast. It has a surface of ... and about inhabitants. Maputo is the capital city of Moçambique located in the outer southern part of the country. In 1975 Moçambique and Maputo (till then called Lourenço Marques) came to exist as an independent unit as they broke loose from its Portuguese colonizers. A small overview:

Chapter 2. Historic Frame

Moçambique is part of the rich colonizing history of the Portuguese travelers and it goes without saying that its current society is still very much influenced by it. As early as the end of the fifteenth century, Vasco da Gama (1497-1498) and Pedro Alvares Cabral (1500) had already passed and left their marks on the east coast of Africa in their search for the sea connection to rich spices market of India. (Map 2.) (Caetano, 1951) Originally the main administrative jump and control point was located up north, on the 'Ilha de Moçambique' (today protected by UNESCO as world heritage), which continued to be the main point of interest for the Portuguese up to the 18th century. Then, after passages of the Dutch and the Austrian that had erected some temporary settlements, the 'Baía do Espirito Santo' (aka 'Baía de Lourenço Marques, aka Baía de Maputo') became the strategic passage point, located in the preferred geographical conditions that a bay offers. (Map 3/4.)

Portugal, constituting the 'motherland' in the Iberic peninsula, Madeira and Açores (the island groups that were not colonized but inhabited), possessed till the third quarter of the twentieth century rich (in terms of natural resources at least) colonies such as Angola, Guiné, São Tome, Principe, Cabo Verde and Moçambique in Africa, Macau and Timor in east Asia and Goa, Damão and Diu in India and least but not last Brasil in South America. In the 17th century this was the vastest and strongest colonial empire in the world. Brasil declared independency in the early 19th century (1822) which meant the loss of an important, if not most important, acquisition

Map 2. Map of Portuguese Colonies and Colonizer Routes



abroad. Unlike the other colonies, Brasil had been considered more part of the 'true' Portugal and Portuguese people would migrate their without them being vital in maintaining the colony. This resulted in a truer mixture of culture and more intensive integration in both directions, although the Portuguese colonizing methods did generally proliferate this in all colonies. (Morraiss Sousa, 2001)

The loss of Brasil was a blow for Portugal from which it would never really recover. Although the colonial epicenter shifted towards Africa and Moçambique and Angola received the centre of attention that was once Brasil's, the economy of the 'motherland' did no longer have the capacity of investing to large extend. The little input coming from abroad would show its usefulness depending on the management of the local administration, in Moçambican terms it was definitive for Lourenço Marques' future.

Lourenço Marques grew out to be a thriving metropolis in the African continent, one of the most beautiful where the reference of Brazil was never far away: Rio de Janeiro from Africa. (Vanin, 2008) From the end of the 19th century till halfway the second half of the 20th, Lourenço Marques grew consistently according to Portuguese colonizing principles. According to Caetano (1951), the Portuguese had an assimilating tradition in their colonization methods, of which four create the base. Political unity, spiritual assimilation, administrative differentiation, economic solidarity. Portugal was a unitary state with only one territory, one popula-

tion and only one government, since the overseas acquisitions are considered provinces and part of the national territory which makes these colonies inalienable from the 'mother-country' herself. Nevertheless, the population was made up in two juridical classes: citizens and aborigines (Caetano, 1951) who are considered members of the black race or descending from it who continue to live in their traditional way and do not by education acquire the outlook and manner of life of civilized men. This statute protects the natives from European law which they do not understand and would harm their habits.

The policy promotes spiritual assimilation: although respecting the local principles and tradition, the Portuguese legacy is also transmitted in order to assimilate the people and acquaint them with the Portuguese habits and include them in the Lusitanian community. Since this assimilation cannot happen in a likewise way in each place the Portuguese set foot, they incorporated administrative differentiation into the colonization principles since each situation could require a different approach of maintain the Portuguese interests in the area.

The methods of colonization have always been considered peaceful. (still Caetano, 1951) Because of the rather limit literally 'human resources' available in the home country, alliances had to be made with the locals in order to maintain a defendable position in the territory. And although there probably was some 'gentle persuasion'

Map 3.. 'Ilha de Moçambique' and Maputo Bay



needed, the collaboration happened in conditions without hatred, rather by lively cordiality.

The 'truth' as portrayed before by Caetano, is that the Portuguese in the end did not manage a 'color bar'. The natives were not separated from the citizens. In reality, partial racial discrimination occurred in the extreme north and south of Moçambique, due to the influences of neighboring countries South Africa and Rhodesia. (Morraís Sousa, 2001) Maputo is located in the epicenter of this dubious relation which was very readable in Lourenço Marques in the layout of the city, the strong line between 'Cimento', the cement city of the colonizers versus the 'Caniço', the temporary reed houses of the black natives.

As in other colonies the relation between natives and colonizers fractured in 1975. Moçambique came to existence as the Portuguese quietly abandoned the scene. Lourenço Marques and its street names where changed, Maputo was born. It was especially in the period following the independency that a lot of the previous glory was lost and Maputo was transformed into the unmaintained, semi destroyed scenery of today. The power vacuum after the break from Portugal created a bloody civil war between FRELIMO and RENAMO causing death and destruction which effects are lingering on. Till today undetinated land mines pose a major threat for the people in rural areas. (following tire tracks on fieldwork is a good advise)

The recovery from this perilous period started after the official end of the civil war in 1992, but still today there is a struggle for getting the country on the rails. Maputo, the capital with about 1,8 million inhabitants in the metropolitan area, takes the lead in this crusade.

Map 4. Maputo Centre on the right on the corner, from 1969





Part 1. Analysis

As if he deliberately wanted to oppose the other kids in the pictures, his face never showed the flair of his shirt. Strong expression though! (Image from fieldwork in the Infulene Basin)

Chapter 3. Changing
Centrality

Maputo came officially to existence as the city Lourenço Marques in 1887. As any other city, its social, economic and political influences over time were translated in the present physical characteristics testifying for different stages. The dynamics of the city will be explained through the concept of centrality that will be traced back through three snapshots in time: 1887, 1964 and now. From this discourse, that is more elaborately unraveled in chapter 9, concepts are drawn to determine a specific topic and problem statement for the thesis. The three times were chosen according to important historic moments in the planning reality of Maputo. Three plans can be considered more influential on the actual evolution of the city: ‘Plano Araujo’ in 1887 that defined the first grid in the city, then from 1952 to 1955 ‘Plano Aguiar’ that would sound the last colonial spirit of a unitarian Portugal. (Vanin, 2008) The plan of 1969, ‘Plano Directorio de Urbanização’ (PDU, 1969) was a very metropolitan and thus revolutionary approach, but because of the independency in 1975, its influence was minimal. Last, in 2008 the ‘Plano de Estrutura Urbana de Maputo’, was approved (PEM, 2008). A travel guide of 1964 captures the idea of centralities after Aguiar. (scheme above)

Lourenço Marques was founded by the Portuguese as a stop over for their trade routes towards India and the function of the city was thus concentrated on its water related activities with the protecting fortress as gravity point of the current ‘Baixa’. This oldest and low lying part of the city is characterized by the narrow colonial grid and its isolated location between the height difference and the bay. One

road, ‘Estrada de Lidemburgo’, connected the city with the hinterland to be able to ship inland resources to the European mainland. The orientation of this road determined future expansion uphill and the creation of the ‘Praça da Independência’, located in the new grid designed by Araujo. The axe between the fortress and the square became very important for the city. (Morrais Sousa, 2001)

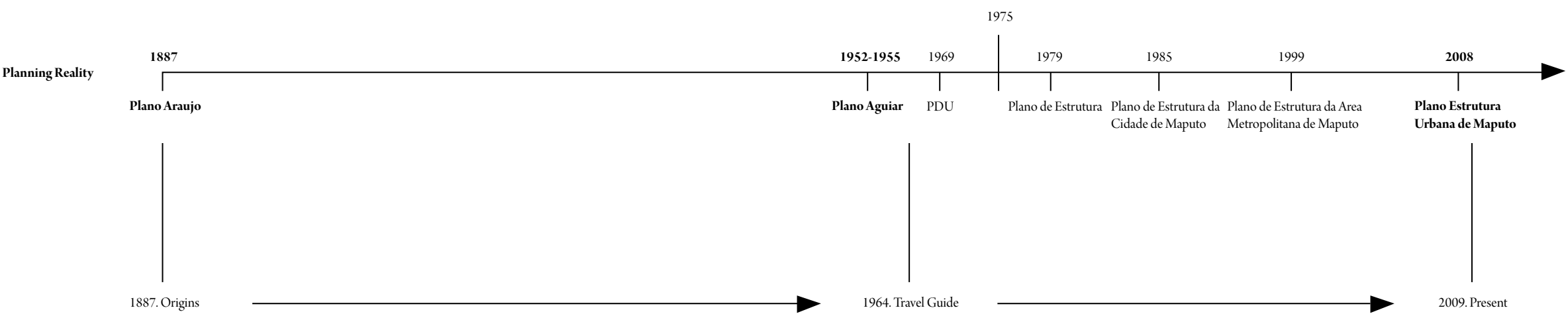
The road connection to the hinterland, reaching the English territory of Transvaal, was soon replaced by a railway that would increasingly confirm the Portuguese interest in local trade. Although the city was, still is and always will be used as a gate to the ocean, its activities expanded beyond the original ‘refueling’ function. The rail tightened the bond between Portuguese and English and secured in that way an alliance capable of withstanding other colonizing threats. The railway reached the ‘Baixa’ on the west side resulting in a thriving railway square, a new centre of activities. (Lamas, Res-sano Garcia, 1992)

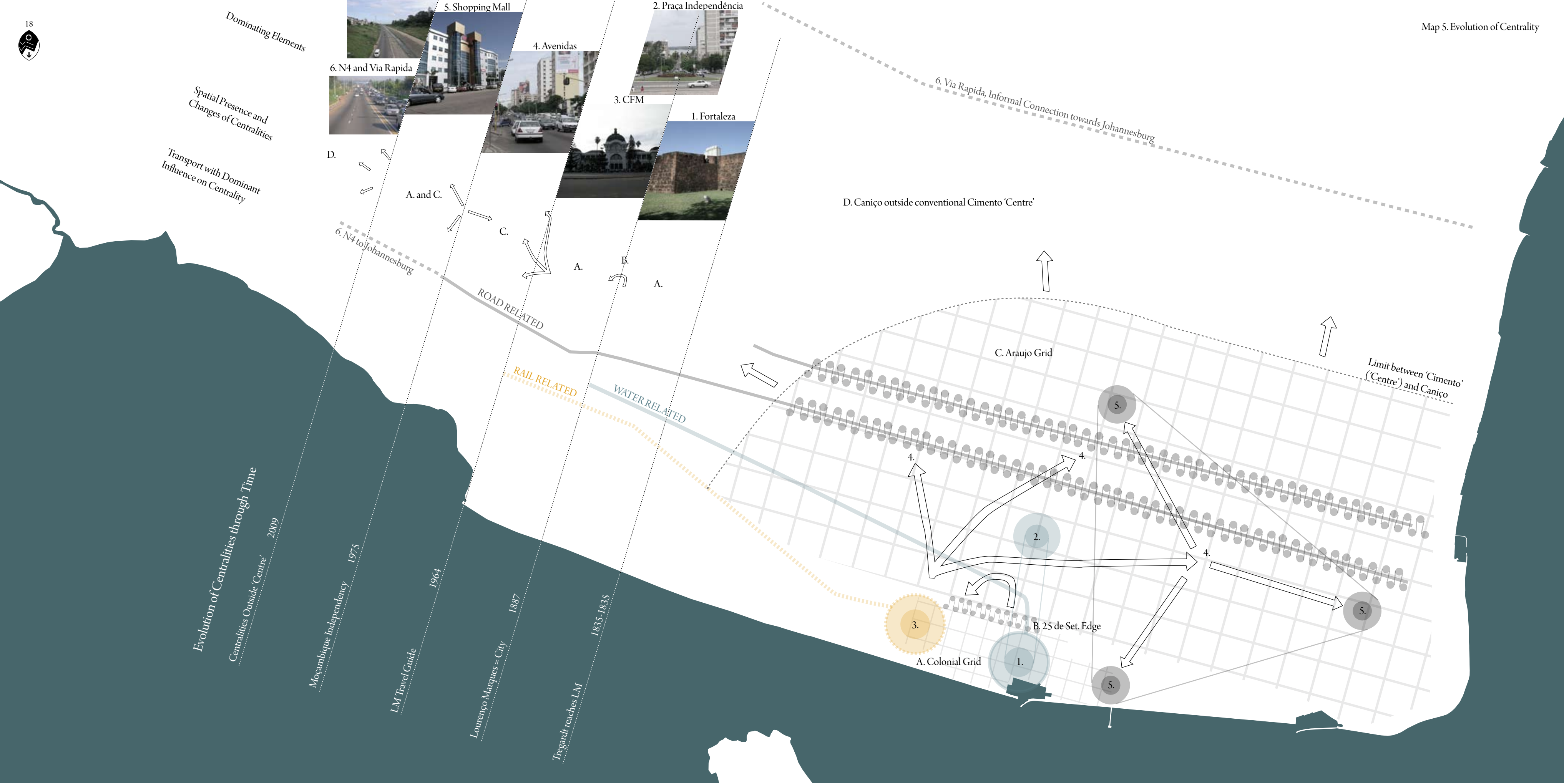
During this period, the car started gaining importance and with it, the road. Except for the ‘Avenida 25 de Setembro’, the edge between the old colonial grid and the Araujo grid, two other east west oriented roads became important centralities in the city. The axes bundle car traffic which generates many activities that thrive from the good connectivity. Except for informal activities on public spaces, cinemas, hospital (used to be pushed more outwards, but gets integrated due to the expansion of the city) etc. This tendency becomes more extreme in recent times with the shopping mall where a lot of activities are bundled together and made directly accessible by car.

In stead of having different degrees of interaction on the road, the mall becomes the isolated element for the upper class. It is the effect of the security paranoia blown over from Johannesburg.

The centralities have always been very closely related to the connection to the hinterland, namely the Transvaal area and later Johannesburg. From the ‘Estrada de Lidemburgo’, over the railway to the 2 east west avenidas and are visible in what is generally accepted to be the city centre of Maputo, the ‘Cimento’. During the evolution of the city, there had always been a clear distinction between that centre and the ‘Canico’, the reed houses areas in the outskirts of the city for the indigenous. Till 1975, this border was very much present, but after the independency the centre became accessible for all. Except for opening up the city centre, the reverse was also visible:the ‘Cimento’ and ‘Canico’ are now flowing into each other, the border is dissolving. (Vanin, 2008)

This evolution of the last decades shows that considering the past centre as a well defined area is no longer valid and the notion of centrality has to be reconsidered beyond it, looking at the whole city of Maputo by crossing not only the border of the original centre, but also crossing the administrative limits of Maputo. This incorporates the municipalities of Matola and Machava, since all they show to be one urbanized metropolitan area. Three before mentioned concepts lead to the subject of investigation and problem statement.





Chapter 4. Problem Statement

401. Two Lines

The importance of the car and thus the road in the city has increased enormously and resulted in north-south and east-west road stretches to have become new crucial concepts in the city. This dependency of the road is very apparent since the majority of the Moçambican people have no capacities to purchase their own car and are therefore submitted to the extent of public transport. In Maputo, public transport can be considered to constitute ‘Machim-bombas’ (normal busses) and ‘Chapas’ (mini busses that are overloaded). In the ‘Cimento’ the road is very much integrated in the grid of the city centre (quite isotropic road system) and still claims a dominant role compared with the others.

As the city can no longer be perceived as the duality of ‘Cimento’ and ‘Caniço’ and the centre loses its well defined borders, the concept of centrality needs to be further investigated on a bigger scale to be able to increase the general population’s accessibility to the different resources of the city. Strategies can be developed that lead to the increase of urban complexity in the metropolitan area of Maputo.

The connection to Johannesburg (or Transvaal before) seems to have played a major role in the dynamics of centrality and narrows the investigation to the east-west direction to test the present status of this influence

The last trend tendency of the importance of the road is extended on a larger scale to try and understand what the dynamics of centrality along the road can be outside the ‘Cimento’. The choice was made to investigate the roads connecting to Johannesburg nowadays. Two lines are identified: the official highway N4 and a parallel less formal connection, called ‘Via Rapida’ inside the Maputo administrative area, that is not used now to connect to Johannesburg, but sure shows potential for it. Investigating the way that these lines interact with their surroundings is crucial to understand how a change of this relation can increase the live-ability of the Maputo metropolitan area. Especially because these lines will introduce centrality in western and northern direction, but also because these lines probably increase in importance outside the ‘Cimento’. The difference in scale between the two lines will allow them to influence each other as they portray different relations according to their character.

402. Problem Statement

From a double theoretical investigation (Chapters 9 and 10), the investigation of two lines is defined for which the necessary fieldwork was done in order to understand as much as possible of the local conditions.

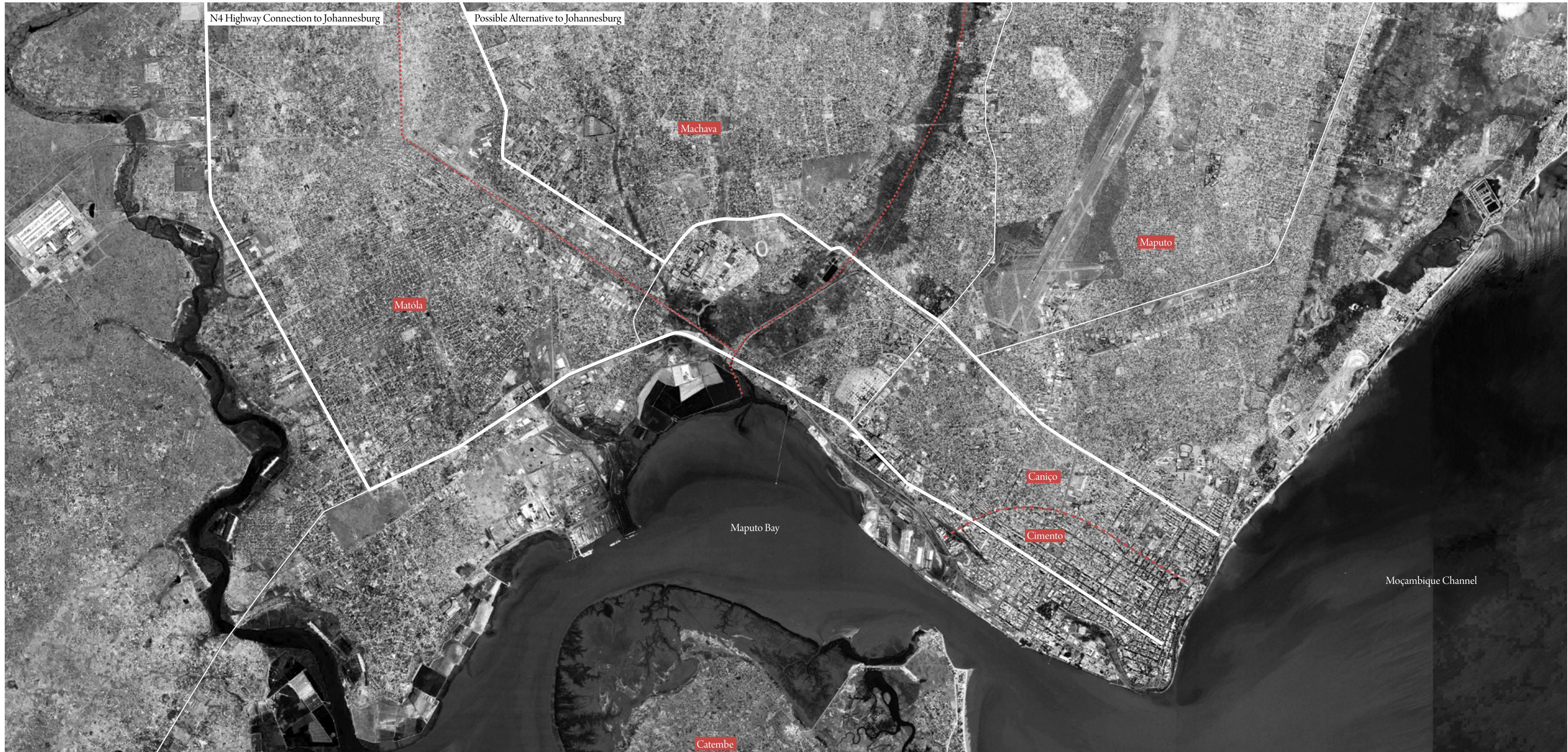
The scope of the investigation is not to provide strategies for a complete reformation of the city of Maputo, but clearly starts from the specific relation between the lines and the dynamics of centrality

found in the physical coexistence of the lines and its surroundings. The investigation analyses this relation and formulates accordingly some strategies to alter it that respond to the characteristics of the surroundings and the current relation to then imagine changes. Some projects show some different approaches.

Next to providing some theoretical background to the research that was done, the goal of this thesis is to specifically investigate and analyze the relation between surroundings and lines and relate it to the discourse of centrality to balance the dependency of the road. By introducing some basic changes along the lines relations between landscape and urbanization, large scale and small scale, planned and unplanned etc. are defined and intensified according to their qualities. There is also specific attention for the inter-didactic and interdependent possibilities between the 2 lines. A brief overview of the afore lying path:

The analysis of the relation with the roads contains 5 concepts that are derived from the research chapters 9 and 10: flow, address, circulation structure, space and field. Address and circulation structure are derived from Chapter 9. They talk about the accessibility of tissue (address) or road (circulation structure) to the lines and provide insight into questions as: is the tissue disconnected from the line or can it easily interact with it? What are the elements that induce or prevent such interaction? How is the line integrated into the different road patterns it crosses



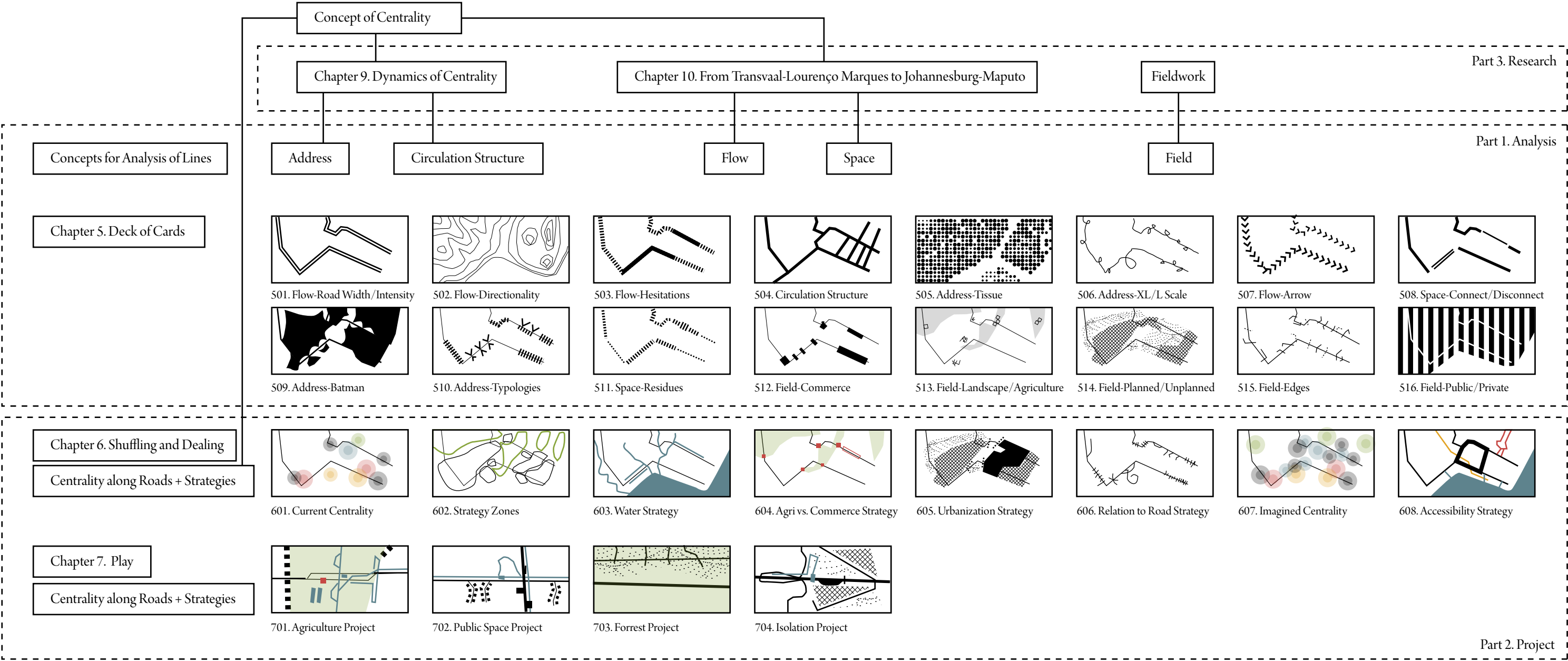


Map 6. Aerial Image Maputo with the two lines highlighted

in addition to how it works in a bigger scale structure of mobility? Flow and space are derived from Chapter 10 and talk about how scales are opposites, but also interdependent. There is always a shrill contrast between the designed flow and affected tissue in its vicinity that has to give up space for that flow.

Field regards more general concepts about urban tissue, landscape etc. that need to be added to combine it with the other 4 concepts. These 5 concepts have lead to 16 maps. These maps, the ‘Deck of Cards’, are not grouped per concept, but organized logically so that the sequential reading provides a coherent story not only allowing to understand the presence of the lines in Maputo, but also to start understanding the city as a whole.

This deck of cards is then shuffled and recombined to form strategies which in their turn lead to some specific projects as an illustration of how the relation to the road can change according to the necessary local and global conditions..







Chapter 5. Deck of Cards

Taxi drivers in front of the 'Hotel Moçambicano'. A deck of cards keeps them busy as they wait for clients. Eram, são, muito simpáticos!

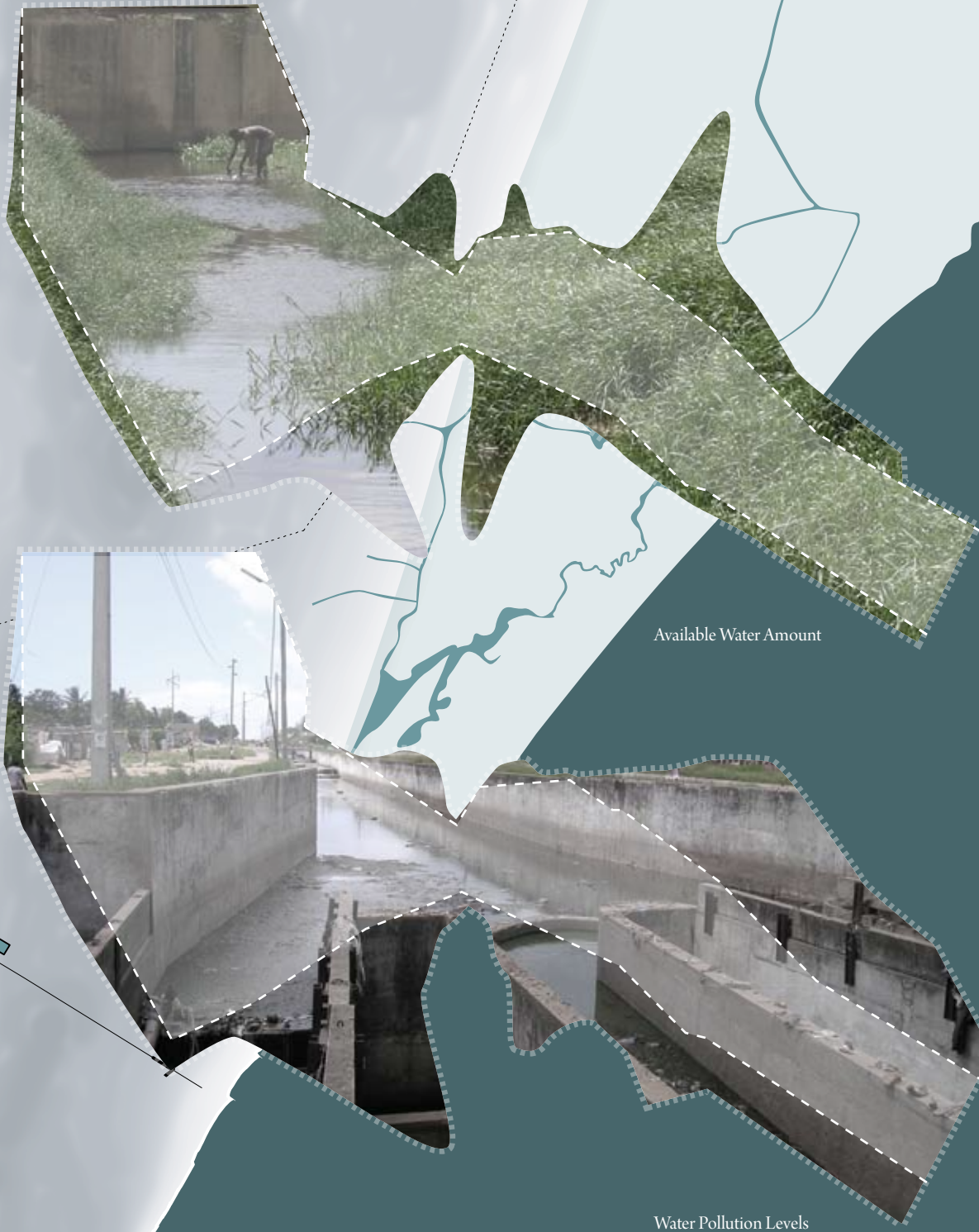
501. Flow-Road Width/Intensity, the first most considered reason of existence and function of a road is generally accepted as guiding vehicular movement from one place to another, which is touched upon in this first interpretation map. The sum up of mapped interpretations and meanings of the lines following this map shines a light on the different ways in which the investigated lines operate and exist in Maputo. For the N4 line, the toll road connecting Maputo with Johannesburg, the use of the road as a fast, capacity rich connector was the true origin of creation to result in the condition it portrays today: wide road with mostly 4 lanes and additional lanes on major junctions. The more northern connection exists longer and has only two lanes over its complete trajectory, although the possibility of 4 lanes, space left open and a drainage canal in between, was created for the part in the municipality of Maputo, called 'Via Rapida', since once it was imagined as the N4, but never executed. The vehicular capacity of the lines are defined by the width of the road and determines in which places congestion could occur if combined with the actual occupancy of vehicles. The movement speed of the traffic in congested zones decreases drastically limiting connectivity and compromises the function of the road as a smooth connector. Congested zones are present on both lines caused by the increasing need to make the east west movement from inside to outside and vice versa, although they are limited to highest traffic hours. The 'Plano Estrutural de Maputo' imagines a high increase in number of vehicular movements, forcing to consider increase of flow related problems. Nowadays, the congestion is mostly taking place in the east, towards the city centre, while the west remains quite manageable and Catembe across the bay mostly empty.



Flow Intensity projected on Road Width 
Flow Intensity exceeds Road Capacity 



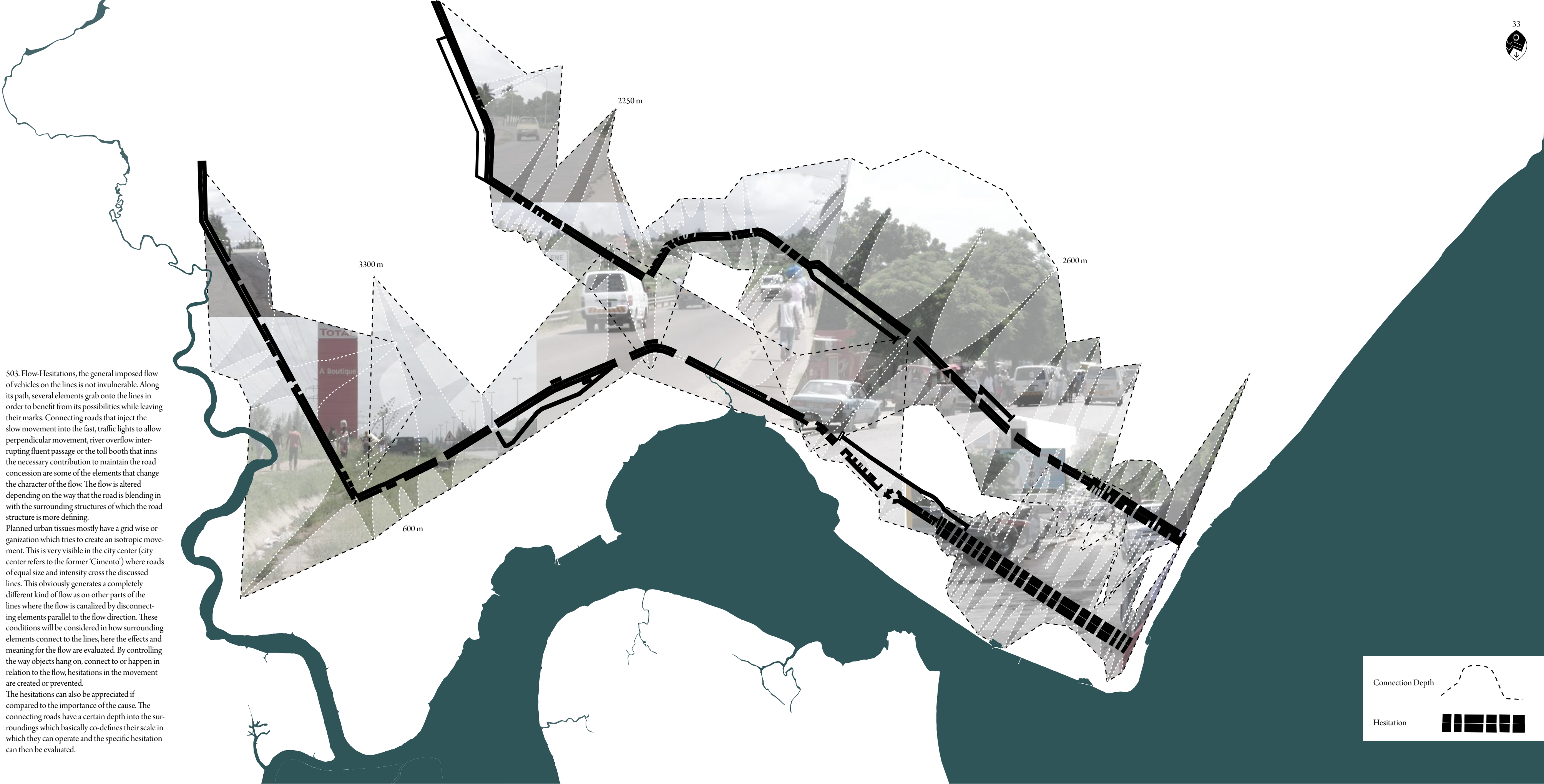
502. Flow-Directionality, the city of Maputo has been characterized by its topography. Although the 'Baixa' arose on the bay edge (Baia de Maputo) on the lower plane, soon after higher ground became the background for urbanization and later on the river basins would be reached again as urbanization moved downhill again towards the north, west and further away to the south. The highest point in the city is located very closely to the sea in the east which portraits Maputo in a very special way: going away from the city center area, the former 'Cimento', always means descending to lower ground, in the east towards the basin of the river Infulene.. With the mercy of the more open area around the river, the city of Maputo lies higher, bathing in the african sun. The strong differences in topography create clear water flow conditions that form an important part of the lines' movements since they dynamically slide up and down along with the height differences . Flow of drainage water is organized in the section of the street parallel to the road and runs downhill flowing into the different low lying river basins that intersect the lines perpendicularly. In these places bridges or actual overflow of water on the road can be noted. The opportunity that the investment and construction of the road bring along are eagerly used to improve the drainage in the city by concrete canals of considerable size, making the lines not only a convergence of cars, but also a oasis of (drained and often polluted) water. The drainage canals and rivers show different level of pollution and especially different water amounts. Depending on these water amounts, drainage canals are mostly dry, or with constant flow of waste water, showing where future potential for treatment can be.



Available Water Amount

Water Pollution Levels

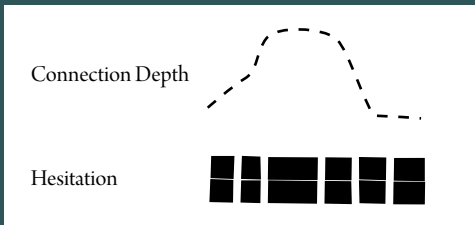
Slope Direction of Road	
Flow Direction of Rivers	
Wet Low Plane	
Drainage Canal	



503. Flow-Hesitations, the general imposed flow of vehicles on the lines is not invulnerable. Along its path, several elements grab onto the lines in order to benefit from its possibilities while leaving their marks. Connecting roads that inject the slow movement into the fast, traffic lights to allow perpendicular movement, river overflow interrupting fluent passage or the toll booth that inns the necessary contribution to maintain the road concession are some of the elements that change the character of the flow. The flow is altered depending on the way that the road is blending in with the surrounding structures of which the road structure is more defining.

Planned urban tissues mostly have a grid wise organization which tries to create an isotropic movement. This is very visible in the city center (city center refers to the former 'Cimento') where roads of equal size and intensity cross the discussed lines. This obviously generates a completely different kind of flow as on other parts of the lines where the flow is canalized by disconnecting elements parallel to the flow direction. These conditions will be considered in how surrounding elements connect to the lines, here the effects and meaning for the flow are evaluated. By controlling the way objects hang on, connect to or happen in relation to the flow, hesitations in the movement are created or prevented.

The hesitations can also be appreciated if compared to the importance of the cause. The connecting roads have a certain depth into the surroundings which basically co-defines their scale in which they can operate and the specific hesitation can then be evaluated.



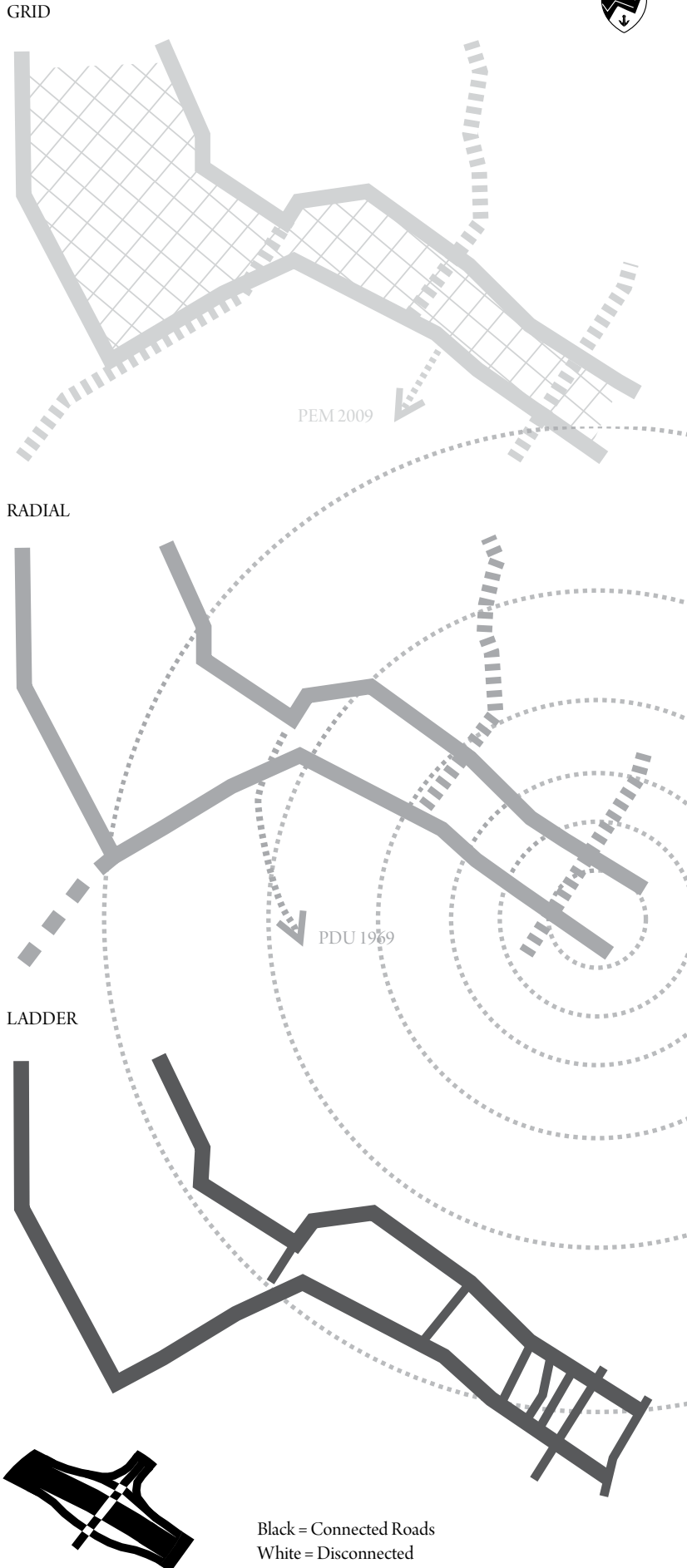
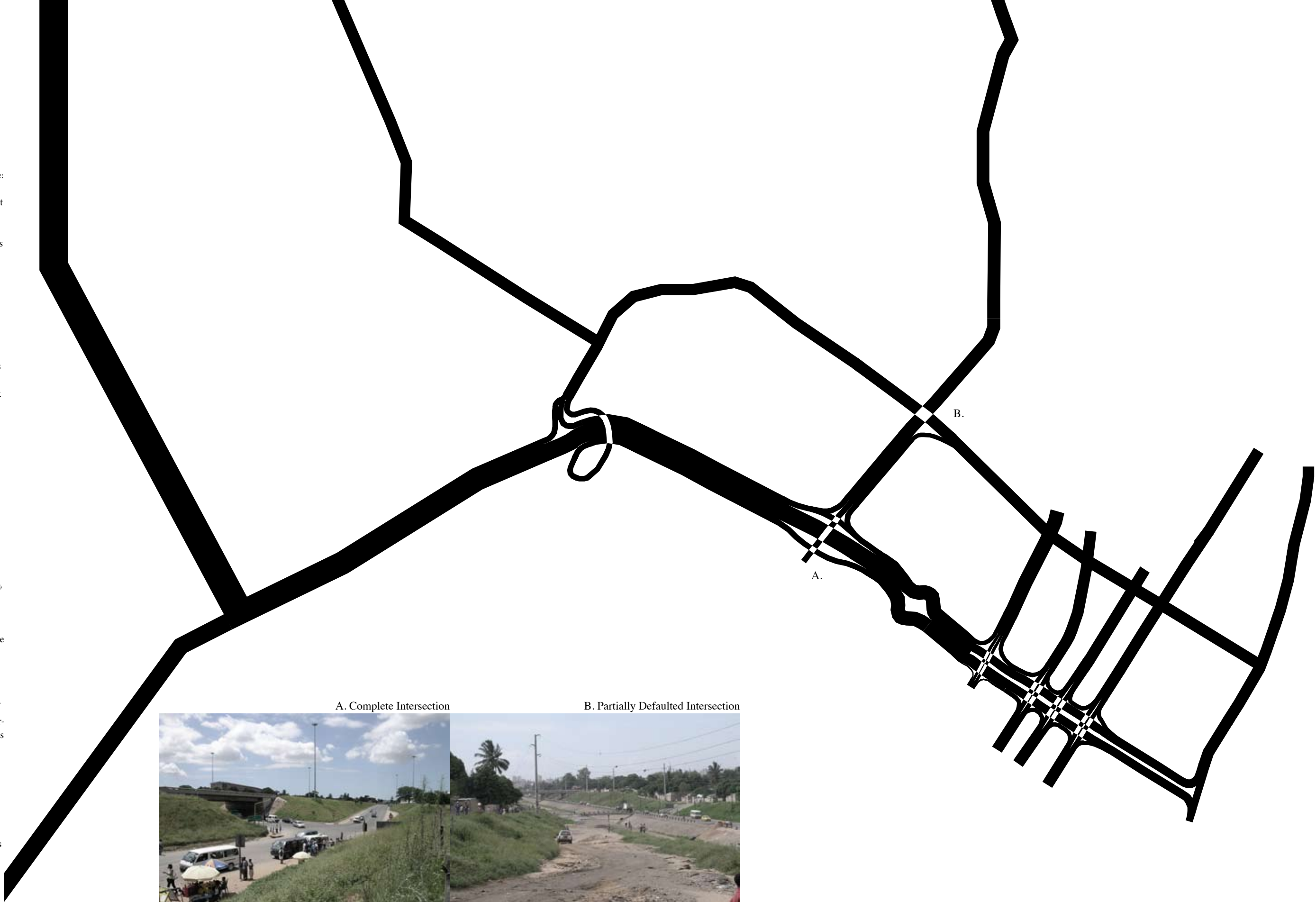
504. Circulation structure, the hesitations map showed how the connecting roads have an influence on the line, changing the status of the flow. The meaning of each line as connector changes according to the evaluation of the circulation structure in which they fit. Three different (traditional) readings of the road structure can be made: grid, ladder and radial.

The grid system considers the equality in east west and north south direction enabling a ample number of choices to connecting from one point to another on the grid implying a few necessary rules for calling a structure a grid. Except for the clear presence of perpendicular connectors in a more or less balanced amount ratio, the roads have to actually achieve the result as another. It is obvious that not every road allows the same connectivity as another, but more importantly, the points of the grid, the intersections of the lines, have to allow any movement from one line to another, which they do not. Some connecting access roads are not finished and thus do not allow certain interchanges between lines, leaving the grid faulty. (see images)

The radial system defines radial roads going from a center outwards and tangential connections between these axes. In Maputo the road fan out over an angle of 180 degrees, since bordering the sea on one side, showing three basic directions: towards the north connecting to Xai-Xai and the rest of the country (since Maputo is located in the outer south) through the N1 and a parallel equivalent that eventually ends up in the N1 further north. The east west connection towards Moamba, Ressano Garcia and the Gauteng province in South Africa, Johannesburg and Pretoria, the first connection ever leaving Maputo, and the south direction towards Boane, Ponto de Ouro and Swaziland. The southern and western direction overlap for a great part because of the bay obstructing the southern movement, but since the construction of the branch connecting to Johannesburg before reaching the new intersection. In this system, the tangential roads would be considered almost missing.

If the grid was faulty, the metaphorical concept of the ladder with steps can be superposed on the circulation structure in which the two discussed lines form the structure of the ladder. The disjunctions between the lines are then just broken steps, making movement more difficult, but as till now, the second more northern line cannot be considered equal or even competing with the N4 connection which is the main access into Maputo.

The plan of 1969 proposes a circular movement road connecting over the bay towards Catembe as the missing link around the city, while the current 'Plano Estrutural de Maputo' seems to aim for another north south parallel part of the grid as an attempt to connect to Catembe with an east west coastal road as a way to relieve pressure from the other east west roads.



505. Address-Tissue, the territorial presented cut out surpasses the administrative boundary of Maputo which only extends till the river Infulene and adds the administrative entities Matola and Machava. Matola became the industrial hub for the Maputo because of its location at the 'Baia de Maputo', while Machave is a purely residential area. Matola is now 'residentializing' while the increasing connectivity of the northern road in Machava threatens the overall residential tissue with alien objects. The main resistance against urbanization is the airport, strong height differences (steep hills) and flood-able area along river bed, although these are increasingly being urbanized. 'Cimento' has always been the name of the center concrete area inside the radial road (with radius 2017 meter), 'Canico' the name of the surrounding precarious and temporary tissue. As time passed, this border weakened and completely disappeared nowadays. Both areas have infiltrated each other. The city kept expanding in the possible directions and the tissue spread kilometers away from the original city center, annexing Matola and Machava to form a metropolitan area where looking at the administrative entities as separate objects is no longer relevant since the tissue become one continuous blanket with some holes, although political boundaries make the government and execution of a metropolitan plan very difficult. In 1969, 1985 and 1999 such metropolitan plan was already made, but never really defining in the future of Lourenço Marques and Maputo with the recent failure of the 1999 plan leading to the 'Plano Estrutural de Maputo' projecting only the administrative boundary of Maputo in the future. Although expansions have annexed Matola and Machava, projections in the future still predict a rapid increase of population requiring an equivalent increase in housing and possibly densifying the city. The city center has a high density as has the former 'Canico' area where every possible place has been converted into a living environment resulting in little breathing space inside the tissue and a lack of public spaces (see further). More outwards the density decreases in Matola and Machava where development pressure was lower and is changing now, yet locally there is also there an increase of density.

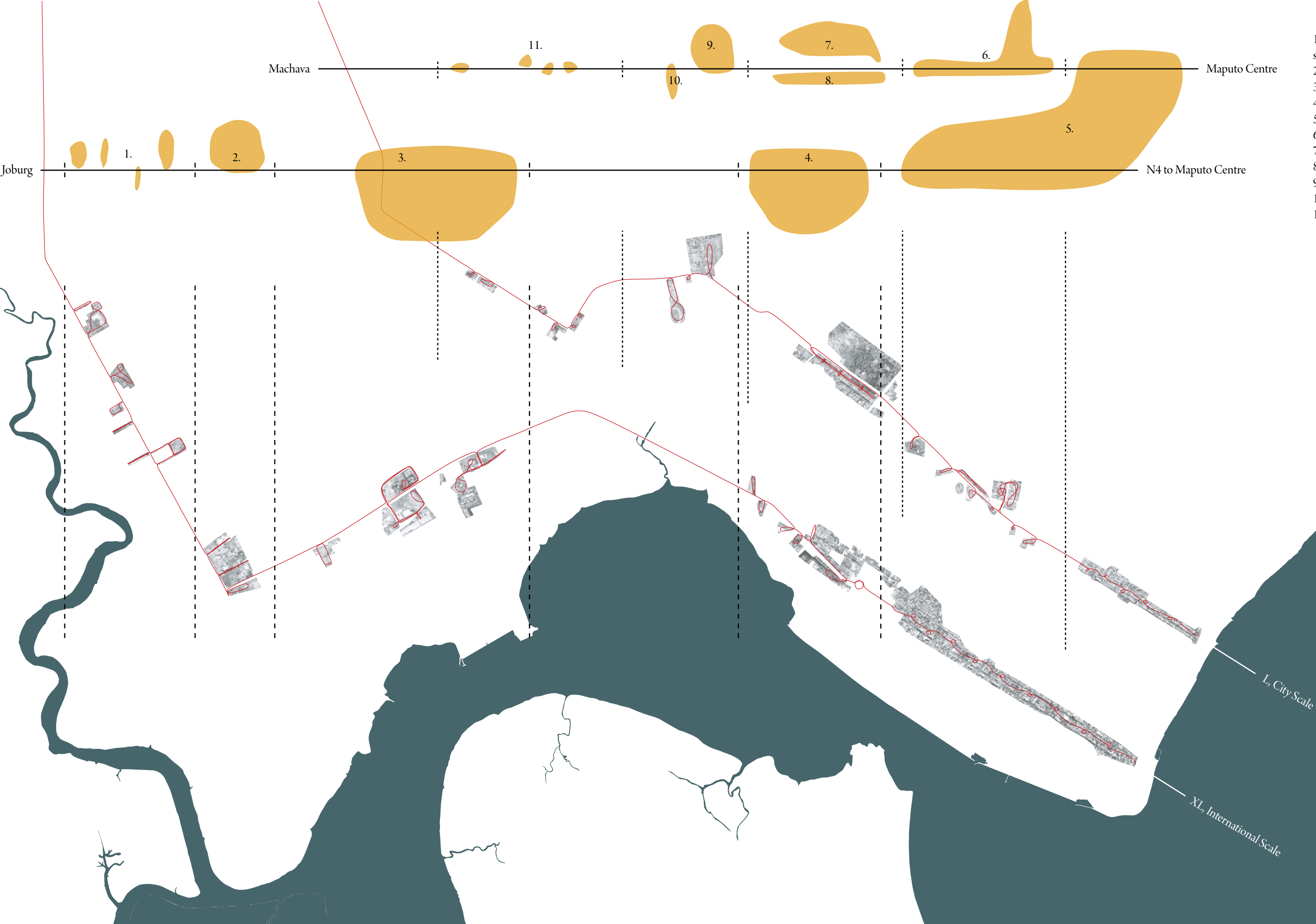


506. Address-XL/L Scale, the larger scale elements are very much related to the flow of the lines. They have a very high need of clear and fast connectivity, while the rest of the surroundings are considered less important for the actual functioning, except for the connectivity to other infrastructure such as the harbor, or railway etc. The lines provide very clear benefits for the larger scale tissue (functions as industry, bigger commercial activities or even consolidated mixed complex urban tissue although this 'typology of large scale' does not have the same characteristics as the others), but this tissue at the same time poses a threat to their environment since the larger scale elements are mostly not integrative, but rather inclusive machines that focus their functioning not on the relation with the rest, but on itself. It is a fluent organized mostly linear process with on the beginning and the end the entering and exiting from the flow.

These elements can be located anywhere on the paths of the lines without taking into account any other argument but availability of space that is well connected to the lines. This idea is richly present in current economic development and more and more elements are added to the lines, forming a necklace of objects that threaten the qualities of the specificity of place along the lines. The elements that are being developed along the N4 are often of XL scale, serving a cause greater than the scale of the city of Maputo itself, industrial development of the harbor, South African commercial centers etc., while the other line holds more L scale elements that serve the city, football stadium, zoology, prison etc.

The consolidated urban tissue acts on the same scale as these other L scale elements because of its complexity of activities that can happen, making the large scale more integrated and therefore less harmful in a way than the other 'pearls' of the necklace. The increasing security issue adopted from South Africa creates a disturbing development where S scale tissue is trying to inherit the characteristics of the L scale: the birth of the condominium in Moçambique. Double security systems and walls with 'guardos' try to disconnect the condominium from its surroundings with the lines as fast and easy escape routes. Except for the fact that such security measures are highly exaggerated and absurd in the peaceful Maputo, the increasing eating of space for generic development is highly concerning.

Larger scale elements often need quite some space for vehicles. Parked cars for the stadium or commercial centers, trucks for moving goods etc. cannot be placed where the flow is occurring, so alternative space has to be found. Economically spoken, they prefer to find this space outside their property in order to maximize the efficiency and intensity of use for each square meter of their 'real' activity. Service roads that run parallel to the lines (see also later) provide the perfect space for this, creating friction again with S scale tissue that can also benefit from these service roads as alternative space to the lines.





507. Flow-Arrows, the investigated lines are not only the background for elements going from one place to another, but interact with other scales of flow that relate to the lines and that alter the way the flow occurs. As the lines are intended to connect places to other places, therefore called 'address', the question is posed whether every place along the line can actually be accessed. As been explained in the XL/L scale, the flow directly connects to the larger scale in order to benefit from the efficiency that can be achieved. For the S scale tissue this story becomes different since they function very differently.

Maputo is increasingly becoming, but far from being, a car city. In a city where a high majority of the people do not own a car, the tissue functions accordingly trying to reach the points where it can connect to the lines since they provide opportunities in movement through public transportation. Therefore the flow of people towards the lines and the organization of the tissue is defined by the way the intensive flow has the chance to come to a pause to connect to the pedestrian speed.

Interaction between pedestrian and vehicle can happen where a specific designed or undesigned space allows a gradient in speed for the vehicles to come to a stop. Slow moving lanes in the center, designed bus stop lanes with pedestrian bridges, pick up lanes and road crossings are some of such spaces. Without this space, the interaction between pedestrian and vehicle cannot be made, but also if this space is present, but cut off from the road, this interaction cannot be made and the configuration of the tissue becomes different.



1. Continuous possibility of interacting along the road, sidewalk
2. High frequency bus platforms along road stretch
3. Less frequent focal points with pedestrian bridges
4. Complete disconnection



508. Space-Connect/Disconnect, as mentioned before, the line is mostly considered from (map 501. Flow-Road-Width/Intensity) point of view, focussing on the passage and capacity of flow and the spatial aspects of the lines may be altered in order to serve this purpose best. This means that the smaller scale afore mentioned flows are avoided from the lines, resulting in deliberate disconnections conceived as fences in the middle of the road to prevent pedestrian passages (dangerous and can slow down the flow) or less direct as drainage canals that are only bridged at important intersections, making clear that car movement onto the road should be limited to a predefined number of places.

This situation is very clear on a certain part of the N4, but also on the 'Via Rapida' (northern study line) part of such section was set up. The line was imagined to be the main entrance into the city and space was reserved for the creation of a 4 lanes connector with a huge drainage canal in the middle (benefitting from the investment and the fact that it runs through the city downhill). The second double lane on the other side of the drainage canal was never constructed leaving an open space on one side, disconnected from the other side because of the drainage. The 'Plano Estrutural de Maputo' foresees the completion of this original idea.

These disjunctions are compensated by bridging them with pedestrian bridges that become very important elements because of their capacity to connect to both directions of the flow, towards and from the city center. The movement towards places that cannot be found in their own environment, for shopping, work, sports etc., is crucial and makes the tissue organize itself according to the access to the lines.

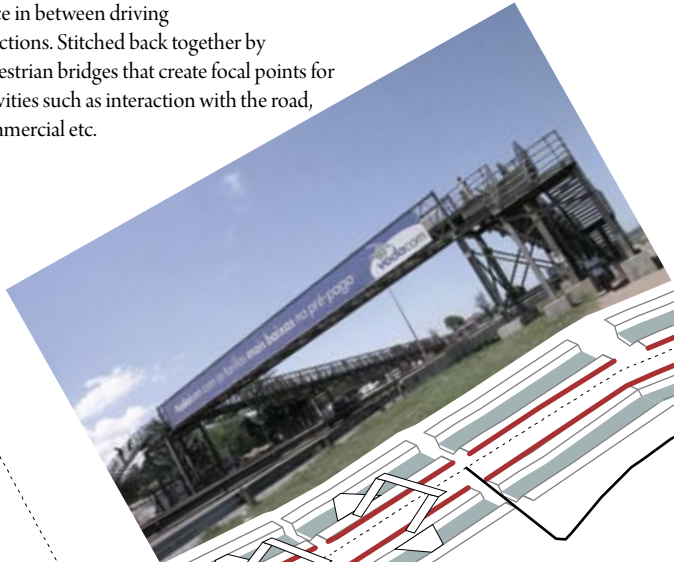
The difference in scale between the lines and its surroundings creates in many cases a different solution. The functions that the lines cannot take on, such as the notion of the road as public space, are organized on a parallel road that lis closer to the tissue scale: the service road. It offers access to the main flow, but also allows a direct connection onto it and absorbs different kinds of activities, such as schools and space for the students to fan to their respective destinations. The service road and the line work together as a 'dual system'.

Contradictory, some of these service roads in passage of time have been disconnected themselves from the main lines. A new road makes the old obsolete, or does no longer allow the service road to connect to the line because of changed conditions. These changes completely alter the original purpose of the service road questioning its validity nowadays and creates several dimensions of connecting or not connecting tissue, line and flow.

- Cause for disconnection
- Connecting Service Road, with or without dead end



Road disconnected by drainage canals and fence in between driving directions. Stitched back together by pedestrian bridges that create focal points for activities such as interaction with the road, commercial etc.



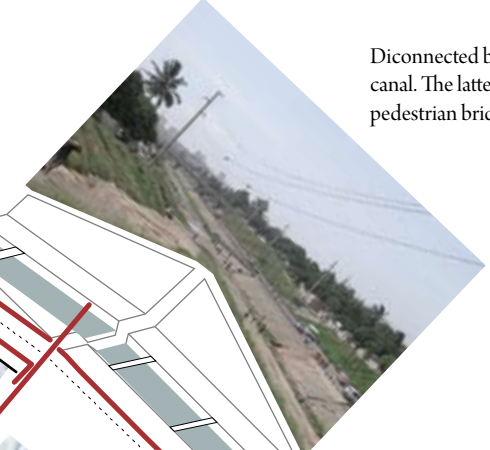
Diconnected old service road by new N1 highway connecting to the north.

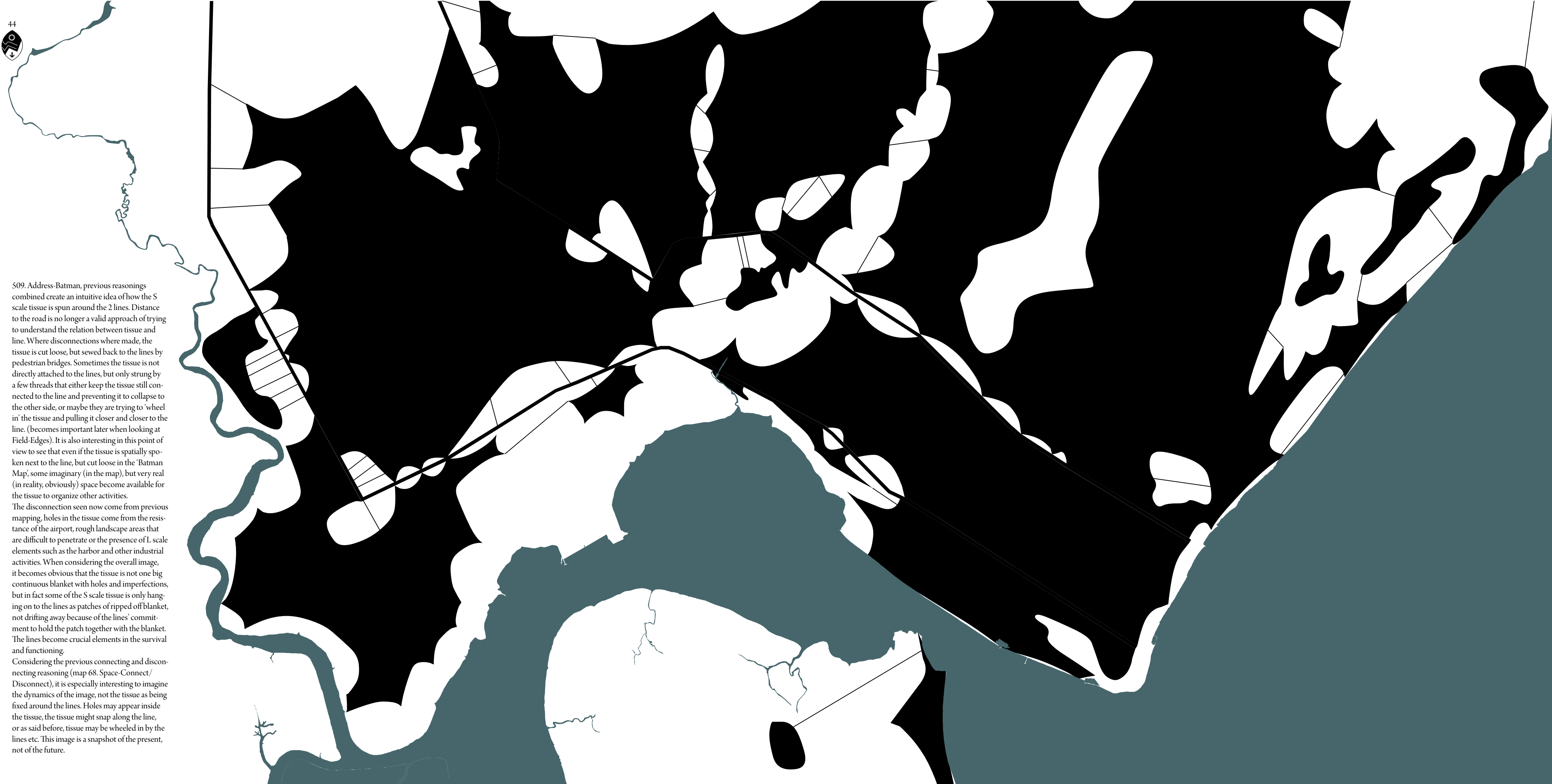


Old Johannesburg connection, the continuation of the current Avenida Edurado Mondlane, was cut by the N1 and the concessioned N4 road. It becomes a service road now.



Diconnected by topography and drainage canal. The latter is solveed by occasional pedestrian bridges.

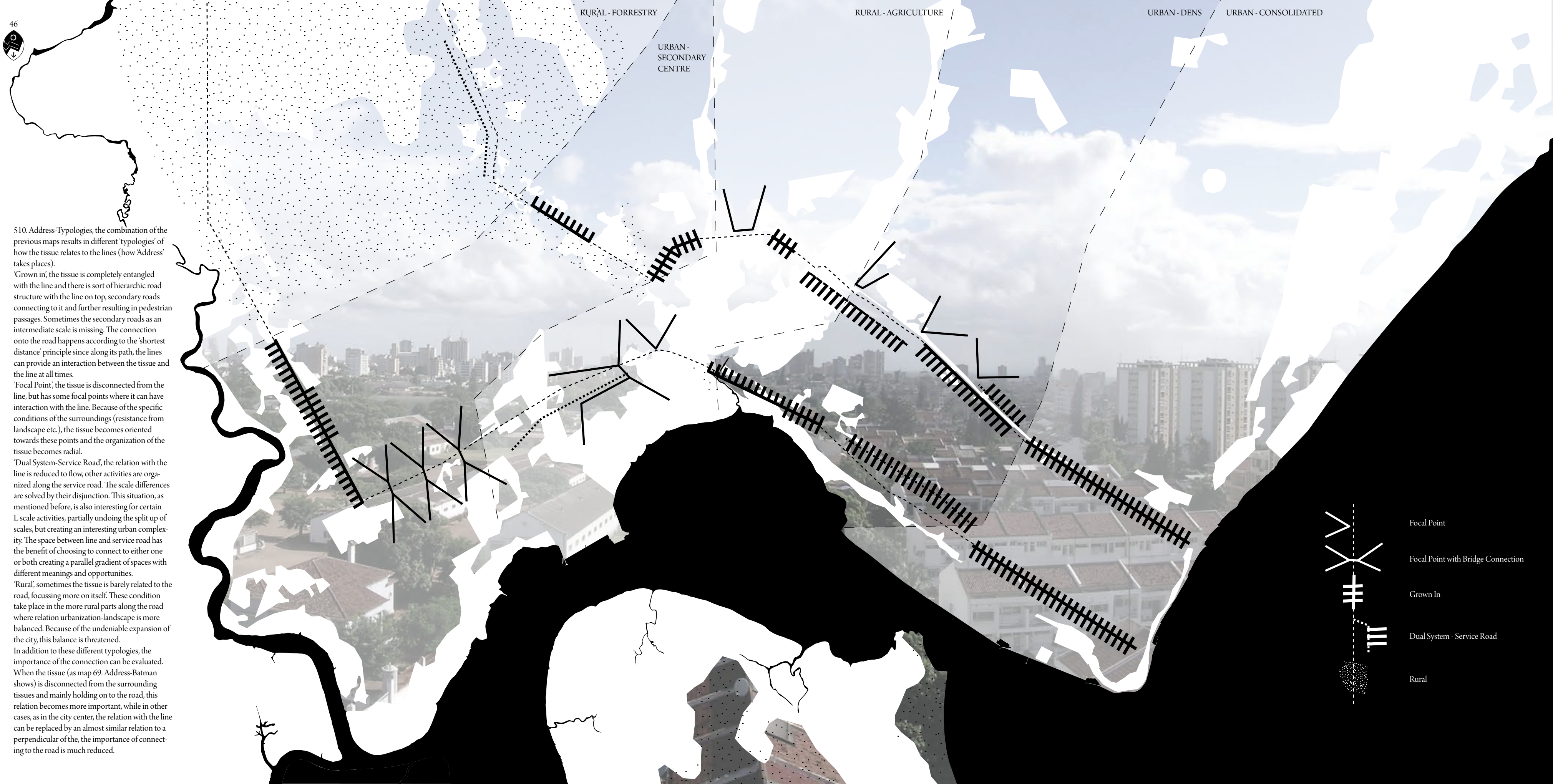




509. Address-Batman, previous reasonings combined create an intuitive idea of how the S scale tissue is spun around the 2 lines. Distance to the road is no longer a valid approach of trying to understand the relation between tissue and line. Where disconnections where made, the tissue is cut loose, but sewed back to the lines by pedestrian bridges. Sometimes the tissue is not directly attached to the lines, but only strung by a few threads that either keep the tissue still connected to the line and preventing it to collapse to the other side, or maybe they are trying to 'wheel in' the tissue and pulling it closer and closer to the line. (becomes important later when looking at Field-Edges). It is also interesting in this point of view to see that even if the tissue is spatially spoken next to the line, but cut loose in the 'Batman Map', some imaginary (in the map), but very real (in reality, obviously) space become available for the tissue to organize other activities.

The disconnection seen now come from previous mapping, holes in the tissue come from the resistance of the airport, rough landscape areas that are difficult to penetrate or the presence of L scale elements such as the harbor and other industrial activities. When considering the overall image, it becomes obvious that the tissue is not one big continuous blanket with holes and imperfections, but in fact some of the S scale tissue is only hanging on to the lines as patches of ripped off blanket, not drifting away because of the lines' commitment to hold the patch together with the blanket. The lines become crucial elements in the survival and functioning.

Considering the previous connecting and disconnecting reasoning (map 68. Space-Connect/Disconnect), it is especially interesting to imagine the dynamics of the image, not the tissue as being fixed around the lines. Holes may appear inside the tissue, the tissue might snap along the line, or as said before, tissue may be wheeled in by the lines etc. This image is a snapshot of the present, not of the future.



510. Address-Typologies, the combination of the previous maps results in different 'typologies' of how the tissue relates to the lines (how 'Address' takes places).

'Grown in', the tissue is completely entangled with the line and there is sort of hierarchic road structure with the line on top, secondary roads connecting to it and further resulting in pedestrian passages. Sometimes the secondary roads as an intermediate scale is missing. The connection onto the road happens according to the 'shortest distance' principle since along its path, the lines can provide an interaction between the tissue and the line at all times.

'Focal Point', the tissue is disconnected from the line, but has some focal points where it can have interaction with the line. Because of the specific conditions of the surroundings (resistance from landscape etc.), the tissue becomes oriented towards these points and the organization of the tissue becomes radial.

'Dual System-Service Road', the relation with the line is reduced to flow, other activities are organized along the service road. The scale differences are solved by their disjunction. This situation, as mentioned before, is also interesting for certain L scale activities, partially undoing the split up of scales, but creating an interesting urban complexity. The space between line and service road has the benefit of choosing to connect to either one or both creating a parallel gradient of spaces with different meanings and opportunities.

'Rural', sometimes the tissue is barely related to the road, focussing more on itself. These condition take place in the more rural parts along the road where relation urbanization-landscape is more balanced. Because of the undeniable expansion of the city, this balance is threatened.

In addition to these different typologies, the importance of the connection can be evaluated. When the tissue (as map 69. Address-Batman shows) is disconnected from the surrounding tissues and mainly holding on to the road, this relation becomes more important, while in other cases, as in the city center, the relation with the line can be replaced by an almost similar relation to a perpendicular of the, the importance of connecting to the road is much reduced.

- Focal Point
- Focal Point with Bridge Connection
- Grown In
- Dual System - Service Road
- Rural



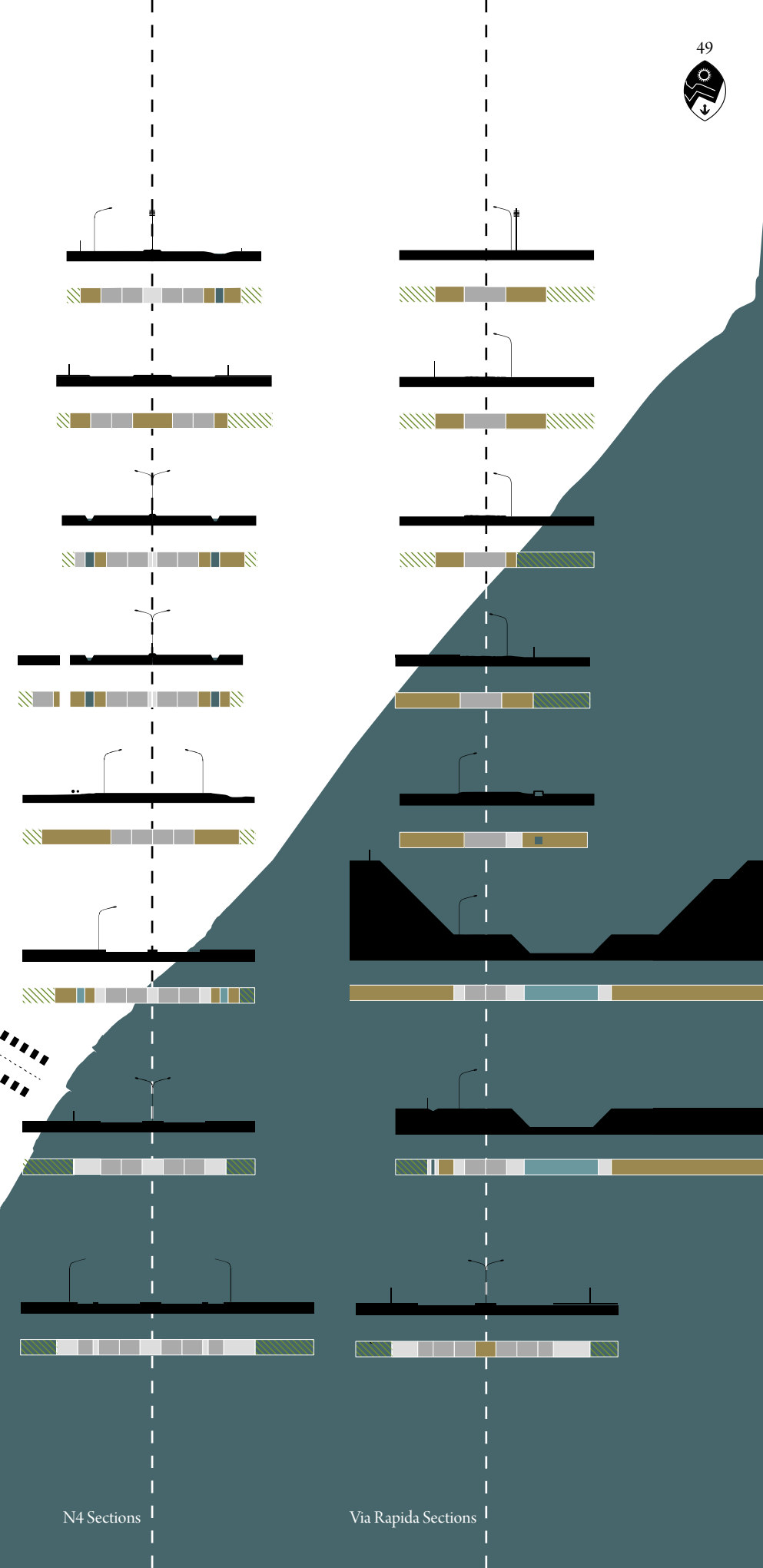
Residual Space along new Road Construction.
The road concession holder is responsible for 50m away from the center line of the road



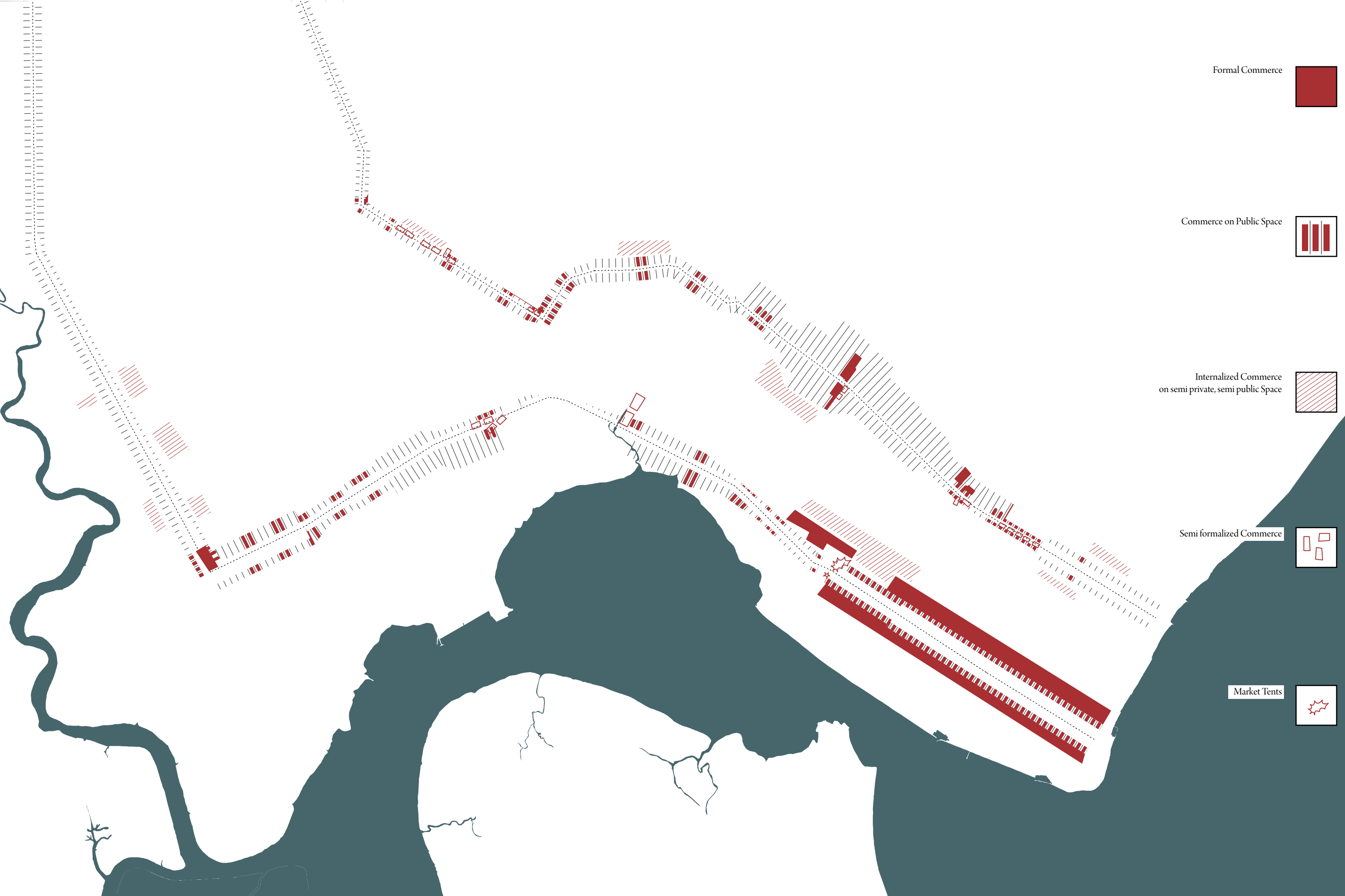
Space that was originally made clear for the construction of the second double laned road with drainage in the middle. The part was never constructed, but it is now included as one of the tasks in the PEM (Plano Estrutural de Maputo).

511. Space-Residues, the residue space of the road is the space that makes the transition from the actual traffic space to the urban tissue or landscape surroundings of the road, which has an important mediating role. This space made up of urbanized terrain or remnants of landscape, holds a range of planned and unplanned activities. In the city center this space is completely defined and bounded as the sidewalk condensing activities onto a narrow and intensive space. Where the tissue is more grown with the road and well connecting to it, the space becomes smaller and mostly hardened and especially well defined. On the other side the space can be very undefined as a true residues spaces, mostly occurring where the tissue is not specifically interested in the road. The space feels vast and is hardly used with an occasional phone booth coloring the scene. In between these extremes, the space is mostly divided in more formalized areas and less defined. A drainage canal as mentioned before, a landscape topography or pipelines along the line bathing in bigger or smaller open space depending on the conditions. The space that is being reserved for the second direction of the road can be considered one of the biggest available spaces and provides therefore great opportunities for changing the conditions of the road surroundings.

Drainage canals along the road reduce access and create passages for tissue infiltration that lead to pedestrian bridges where crossing the road is actually possible



512. Field-Commerce, commercial activities have increasingly become important since it is believed to be the 'salvation' for economic problems Moçambicans are facing. Anything that is for sale can be sold to the small upper class and tourists. Commercial activities happen under different spatial conditions, four types can be specified. In the city centre and in well selected spots further out, formalized commercial spaces are present. In the center these spaces are mostly the bottom floor of multistory buildings, while outside the scale increases and becomes the shopping mall, big commerce type that finds enough space to settle, so not in the center where big spaces are practically inexistent. The commercial activity is completely internalized on the private plot and functions within reasonable opening hours. The opposite is the informal, literally without having a specifically designed form, commercial activity on public space. This activity survives by the grace statistics: possible sellers passing the stand and considering a buy. The activity is flexible to change and the 'opening hours' are mostly based on the day's revenue. In the center this activity seems to spill over from the formalized activity onto the surroundings for two reasons. The commercial activity, especially non primary goods as telephone recharge or chewing gum packages, is often affiliated to a formalized store, executed by a loyal worker receiving a commission for the sales he or she makes. On the other hand, as said before, the commercial activity thrives on spaces of high people activity, making the interaction zones between vehicles and pedestrian obviously a target zone since it has a big flow of people, sidewalks, pedestrian bridge ends, formalized commerce environments, bars in the center are such interaction spaces. The specific activities do differ from the center outwards: in the center, because of presence of tourism, many secondary goods are sold, while more primary products, mostly fruit, in Matola and Machava. In the city center, these two are the most common types of how commerce happens, more outwards, even already in the grey zone what used to be called 'Caniço', the commercial activities are no longer defined strictly on public or private property. Commercial activity can take place on gradient zone between public and private, opposing the current trend to strengthen the border between public and private and thus creating a very familiar and trustworthy selling activity, not private and corporate, not public and anonymous. On other places the temporary commercial activity on public space have grown roots because of the continuous confirmation of flow of people resulting in markets, small barracks, stands and sometimes even little bars. Generally spoken, the amount of commercial activities decrease as the distance from the center increases.



Formal Commerce



Commerce on Public Space




Internalized Commerce
on semi private, semi public Space



Semi formalized Commerce



Market Tents



513. Field-Landscape/ Agriculture, agriculture has been banned gradually from the city center with the remaining landscape in the center now being steep height differences or parks. Moving out of the city, the agriculture activities increase with peaks on open landscape and river basins. Parallel to the definition of 4 types of commerce, there are 4 types of agricultural activities.

S scale agriculture on public space happens in tissue types where not much space is available on the plot itself resulting in mostly linear stripes of plant growth while in the opposite case of bigger plot sizes S scale agriculture is organized on the plot. These productions obviously do not exceed the amount for personal consumption and maybe some additional selling.

More professionally organized growing is organized where more landscape is available being in the river basins and outskirts of the city. Further away there are some orchards and organized fields without a very well developed watering system which basically supports on the water provision that the tissue can provide which is often beneath the level to efficiently produce.

The most professional agriculture is found on the 'Via Rapida' on the crossing with the Infulene river where a water pit system for constant water provision creates good conditions for growing, although the water provision from the river is not enormous and not of best quality. Since the drainage from the city joins the river in between the 2 lines, the water quality goes further down resulting in limited agriculture on the intersection of the Infulene with the N4.

Generally agriculture and commerce decrease and increase in opposite directions as if they substitute each other as activity, which is not far from the truth considering the economic impact of each. More and more people are resorting to selling activities for money income, creating an increasing commerce environment (sometimes resulting in miss placed commerce or badly positioned) and increasing the competition (resulting in heated discussions to be able to sell the same object), but more importantly, because of the image that selling will solve the poor conditions in which many live, agricultural activities are abandoned or no longer sustained which give further urbanization reasons to take in the former agriculture spaces. As said before, the agriculture is more and more banned outwards.

Although land is being urbanized, there is still a lot of landscape available and the rate of usage of the landscape for agricultural activities appears to be quite low and not only because of doubtful ground or water conditions, but exactly because of this change in economic activity.

In fact, agriculture as a primary activity is the first step in turning around the economic situation. Production creates food on the table, trading capacity and in term of overproduce monetary return (selling, but as a last luxury in stead of primary activity). Therefore, commerce and agriculture must be read together as an understanding of the economic conditions translated spatially in the territory.



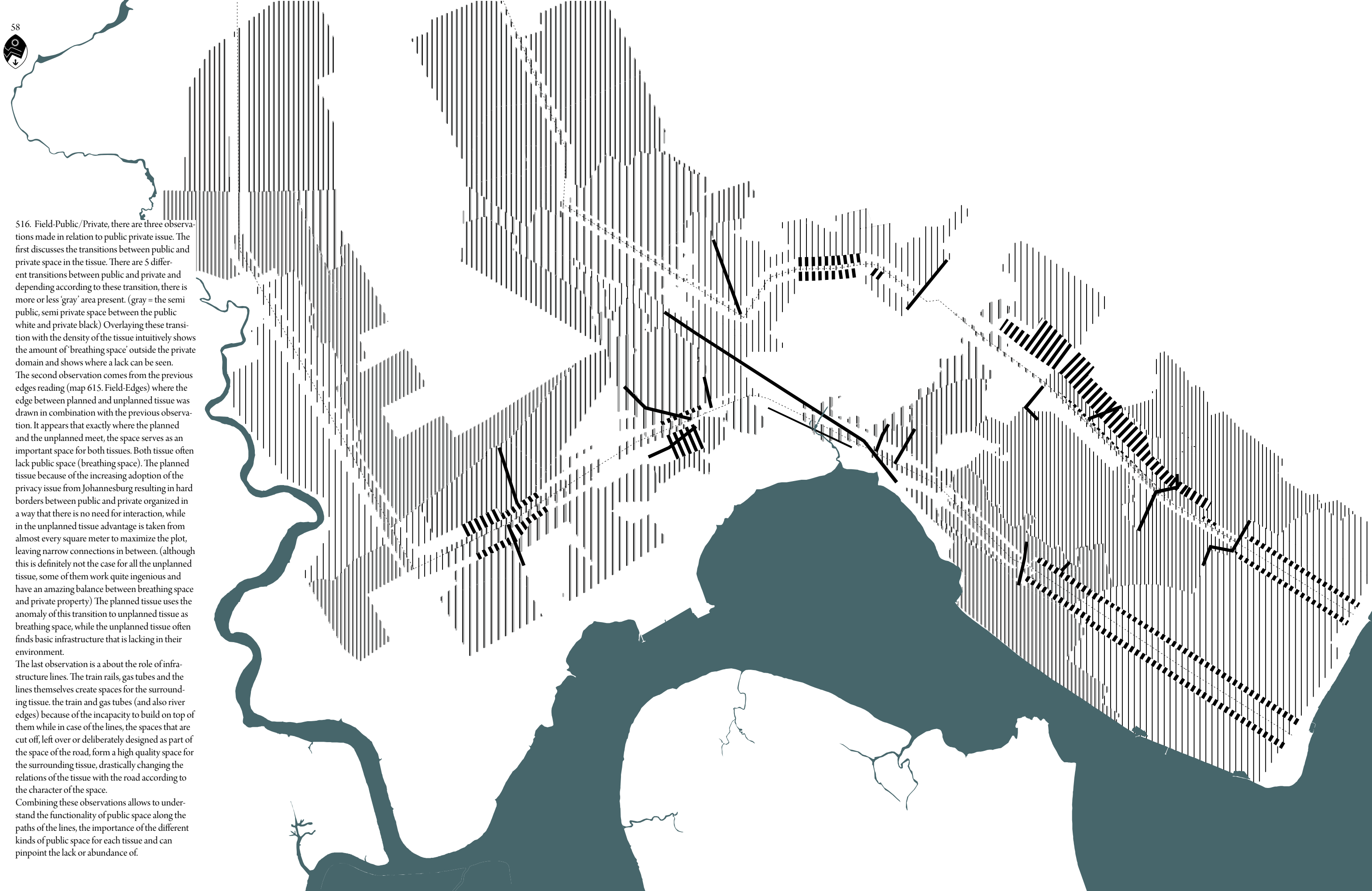


514. Field-Planned/Unplanned, it started as the difference between 'Cimento' and 'Canico': the planned city center versus the vernacular outskirts of temporary housing. Nowadays this difference is disappearing, not because of the formalization of the unplanned, but because of the change from reed houses to cement construction, but this does not imply a formalization process. In fact, it created possibilities of building even more dens than before.

Although new tissues arising these days are mainly planned, the city's tissue is still informal for 60%, questioning the living conditions of more than half of the city and raising the question of how to 'formalize' the informal tissue and increase their accessibility to main infrastructure such as water provision, drainage, electricity etc.



515. Field-Edges, edges often form an important part in all kinds of situations, here specifically the edges between planned and unplanned, as described before, and the edges between urbanization and landscape, as far as an edge can be perceived, will be brought together. The significance of the edges between planned and unplanned will be handled in the next map 516. The edges between landscape and urbanization, although very artificial, have an important significance in terms of preservation of the landscape which aids in promoting agriculture as a very important activity. The edges cannot be pushed away, might be strengthened to confirm the stop of urbanization, could be further developed as a space in stead as a line or could even be moved inside the urban tissue, changing the character of the tissue itself. Reading the edges together on one map creates an insight into the relation between them: it appears that the border between landscape and urbanization is almost always located in the unplanned tissue, meaning that although it lacks some resources compared to the planned tissue, it seems to co-exist with landscape better than the planned that basically eats the landscape. Three specific situation can be noted. Along the N4, the edges are parallel to each other and very close which basically questions the way n which landscape and tissue interact. The line drawn between landscape and urbanization is quite artificial, but reading it with the planned unplanned edge makes it realizable that the tissue and landscape are more interwoven than separated, according to some indigenous principles of using landscape in the tissue. The second situation shows a higher density of edges and a sequence of one edge followed by another with the landscape - urbanization edges prominently present as defining the area. The third show the perpendicular orientation between the edges that, compared with other maps, shows the edges both functioning as public space, each of them work in very different ways.



516. Field-Public/Private, there are three observations made in relation to public private issue. The first discusses the transitions between public and private space in the tissue. There are 5 different transitions between public and private and depending according to these transition, there is more or less 'gray' area present. (gray = the semi public, semi private space between the public white and private black) Overlaying these transition with the density of the tissue intuitively shows the amount of 'breathing space' outside the private domain and shows where a lack can be seen. The second observation comes from the previous edges reading (map 615. Field-Edges) where the edge between planned and unplanned tissue was drawn in combination with the previous observation. It appears that exactly where the planned and the unplanned meet, the space serves as an important space for both tissues. Both tissue often lack public space (breathing space). The planned tissue because of the increasing adoption of the privacy issue from Johannesburg resulting in hard borders between public and private organized in a way that there is no need for interaction, while in the unplanned tissue advantage is taken from almost every square meter to maximize the plot, leaving narrow connections in between. (although this is definitely not the case for all the unplanned tissue, some of them work quite ingenious and have an amazing balance between breathing space and private property) The planned tissue uses the anomaly of this transition to unplanned tissue as breathing space, while the unplanned tissue often finds basic infrastructure that is lacking in their environment. The last observation is a about the role of infrastructure lines. The train rails, gas tubes and the lines themselves create spaces for the surrounding tissue. the train and gas tubes (and also river edges) because of the incapacity to build on top of them while in case of the lines, the spaces that are cut off, left over or deliberately designed as part of the space of the road, form a high quality space for the surrounding tissue, drastically changing the relations of the tissue with the road according to the character of the space. Combining these observations allows to understand the functionality of public space along the paths of the lines, the importance of the different kinds of public space for each tissue and can pinpoint the lack or abundance of.

Space along road

Public Space Stretches

Public Space on space along road

Space in Tissue

Black: Private
White: Public
Grey: Intermediate Space

City centre typology, the edge between public (the sidewalk) and private (the building block) is mostly hard, with some exceptions of accessible building block interiors.

Typology with a semi public, semi private front. This transition enables many types of activities with a more sensitive feeling. Commerce becomes trustable, it can act as a bar, it is additional 'public' space.

Denser tissue with hard edge between public and private. The public is basically the streets which are very narrow and mostly become waste collectors. There is a clear lack of decompression space (social public space)

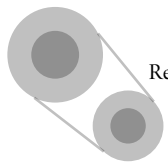


Part 2. Project

Chapter 6. Shuffling and Dealing

The previous maps are recombined into 2 main strategies that come again from the main research topics:

1. Strengthen the urban centrality structure around the lines.
2. Create a structure for entering Maputo around the lines



Relations between centralities



S Scale Tissue centrality, is considered to be tissue with relatively higher density that show a certain complexity and mixité.
S1 = the original 'Cimento' are with the extension to the north. It provides space for merely every activity and is still the main destination for tourists.
S2 = the only stretch of consolidated tissue with higher building typologies outside the original centre. It is cornered by the height difference of the road to the north, disconnected from the road because of the new highway connection to the north (N1) and is therefore quite isolated from other influences.
S3 = the structure of urban centers of Matóla and Machava that are growing together with a grid based tissue.
S4 and S5 are also part of this structure with the difference that the relation to the road much intenser is for S4 because of the presence of an intermediate connecting scale.
S6 = very dens urban tissue surrounding the road results in many activities, but mostly commercial, on the edge of the tissue around the road. The tissue is very dependent of this often very limited space and relation.
S7 = the expansion if the city and relatively new road connection creates new urbanized plots, often condominiums. The presence of the road is drawing urbanization to it.



XL Scale Tissue centrality, concentrations of bigger plot size, not commerce, basically industry areas and large scale object functions such as prison, stadium, zoology.
XL1 = the harbor of Maputo
XL2 = the harbor of Matóla, upcoming and receiving investment from Maputo Development Corridor. It forms a structure of two separately road connected entities, divided by a river.
XL3 = succession of XL functions mentioned above



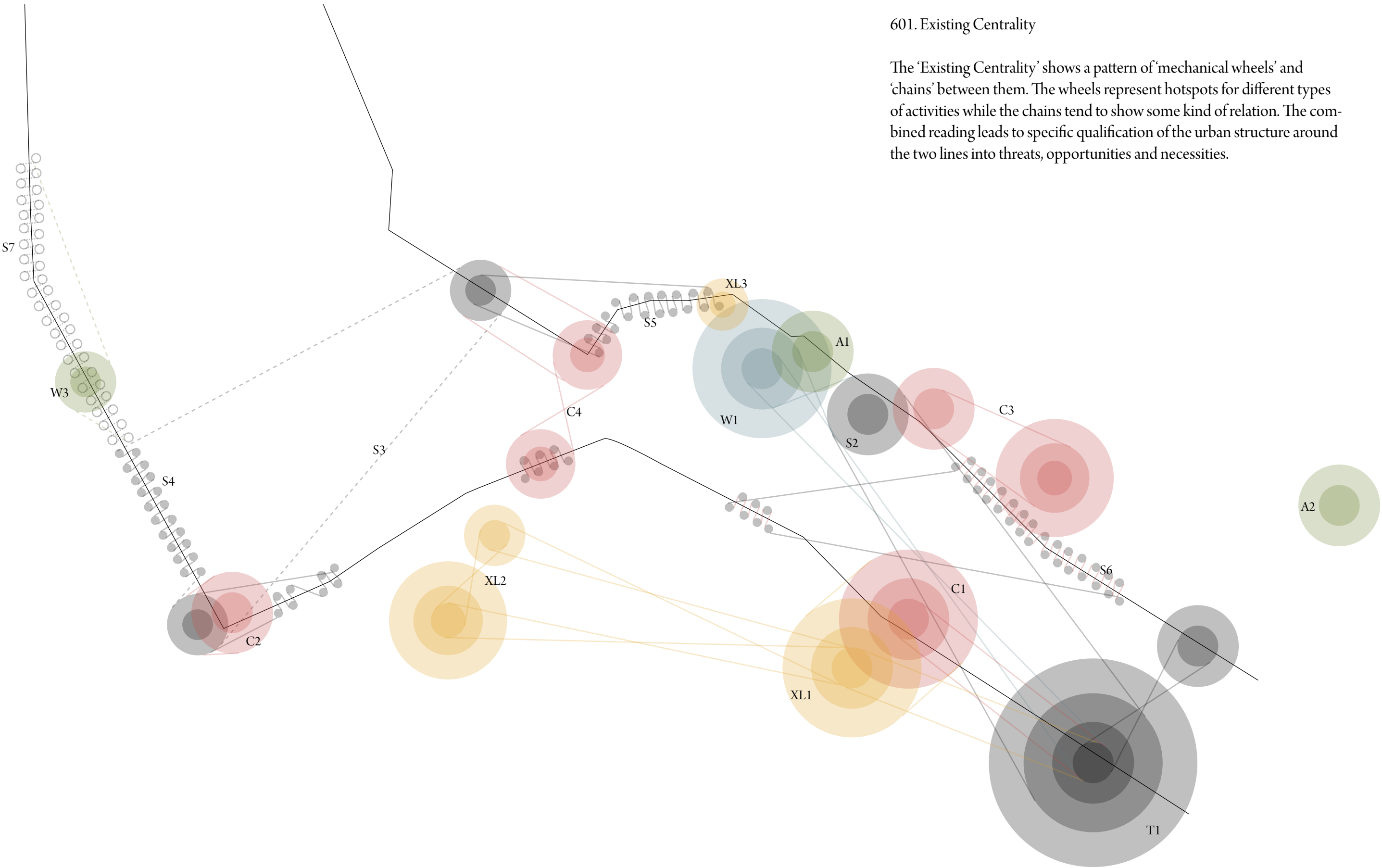
Commerce centrality, concentration of permanently present commercial activities
C1 = large scale companies along the stretch of the service road parallel to the N4. It is the old connection to Transvaal.
C2 = South African supermarket hub, well connected in the corner close to Matóla center.
C3 = larger scale activities related with the relation with the nearby airport
C4 = some concentrations along the roads on key points (where the connection between the two roads is)



Water centrality, defined as places where water is gathered for providing tissue
W1 = the only larger water provision area for Maputo in its (on the edge of) administrative boundary. The main one lies to the south west.



Agriculture centrality, where agriculture is organized on larger scale
A1 = in the river basin along the Via Rapida agriculture is organized in small plots
A2 = low lying large agriculture plots perpendicular to river (long stretches)
A3 = some isolated orchards



601. Existing Centrality

The 'Existing Centrality' shows a pattern of 'mechanical wheels' and 'chains' between them. The wheels represent hotspots for different types of activities while the chains tend to show some kind of relation. The combined reading leads to specific qualification of the urban structure around the two lines into threats, opportunities and necessities.

Shuffling and Dealing

The following 5 strategies (602-606) are the tools that construct the new image, the new urban structure of centralities (607), in addition to it, one strategy talks about a way of entering the city that reflects on the structure of the lines (608).

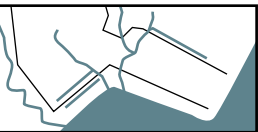
Each strategy is the result of shuffling and dealing the 16 cards of the deck.

602. Strategy Zones



The zones are defined by grouping some characteristics read from the maps on the right that results into 12 zones.
Part of the criteria are:
landscape and type of landscape according to river structure and activities (502,513,515)
urbanization, density, scale of tissue, formal or informal and whether the tissue is isolated or not. (505,509,514,516)
specific big entities such as commercial concentration or industry that can be read as one zone (506,512)

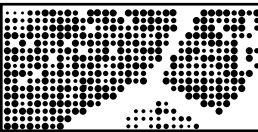
603. Water Strategy



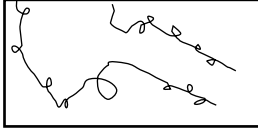
All water related topics are merged together to form a logic structure where the 2 lines work as one.
Forming this strategy there needs to be knowledge about how the present water management works (502,508), but also where the opportunities lie for new elements in terms of space available for purification (511) and its location along the lines (514), water amount and pollution (502) and where the water can serve agricultural needs (513).



502. Flow-Directionality



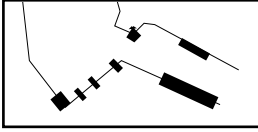
505. Address-Tissue



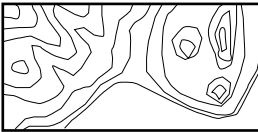
506. Address-XL/L Scale



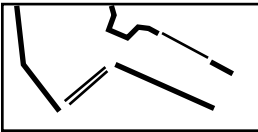
509. Address-Batman



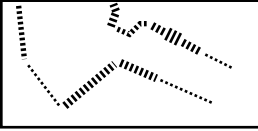
512. Field-Commerce



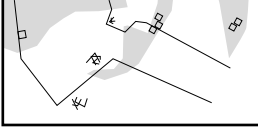
502. Flow-Directionality



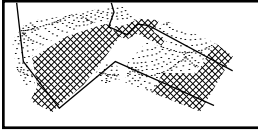
508. Space-Connect/Disconnect



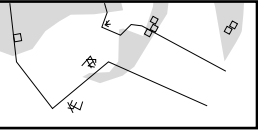
511. Space-Residues



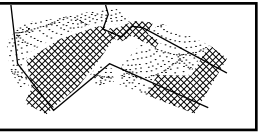
513. Field-Landscape/Agriculture



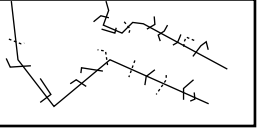
514. Field-Planned/Unplanned



513. Field-Landscape/Agriculture



514. Field-Planned/Unplanned

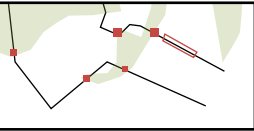


515. Field-Edges



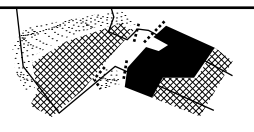
516. Field-Public/Private

604. Agri vs. Commerce



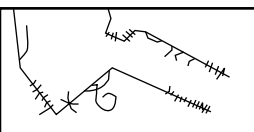
Both are put in the same strategy since they are closely related. Not only because of the small platforms that can work together with the agriculture, but also in a more general sense of balancing the ratio between commerce and agriculture. There needs to be more primary activity before selling can occur.
Agriculture is defined by elements mentioned before in 602. Strategy Zones, but added to it is the element how tissue is spun between the lines to understand the differences between the empty parts that can be enabled for full agriculture activities, and the black part where the relation between agriculture and tissue is more entangled. (509)

605. Urbanization Strategy

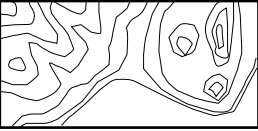


Urbanization can be split up in 2 categories: small scale and large scale with in the small scale also the notion of public space.
The S scale strategy is about tissue and flow relations: where the road flow is blocked (503), the different ways of interaction between car and pedestrian (507), the way tissue is or is not prevented from accessing the road (508) and more general the way the tissue changes over the paths of the lines (505,509,510). The residue space can be charged as public space for the tissue (511), as well as edges between planned and unplanned (515), needed where the tissue is too dens and lacks public space. (516)
XL defines XL scale clusters (505,506)

606. Relation to Road Strategy



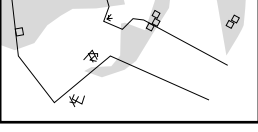
Agriculture



502. Flow-Directionality



509. Address-Batman

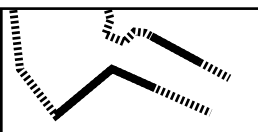


513. Field-Landscape/Agriculture

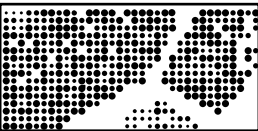


515. Field-Edges

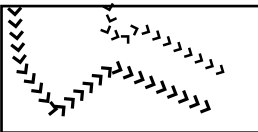
S Scale Tissue



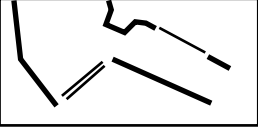
503. Flow-Hesitations



505. Address-Tissue

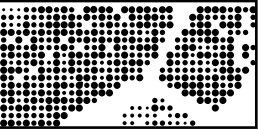


507. Flow-Arrow

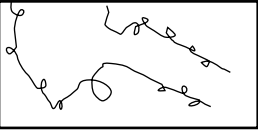


508. Space-Connect/Disconnect

Commerce



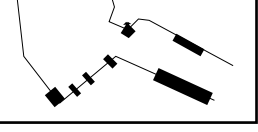
505. Address-Tissue



506. Address-XL/L Scale

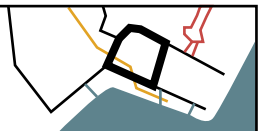


508. Space-Connect/Disconnect

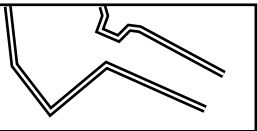


512. Field-Commerce

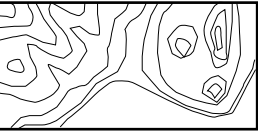
608. Accessibility Strategy



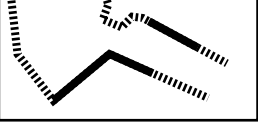
The accessibility strategy is constructed to smoothen the access to the city along the lines. The basic concepts are mostly for proposing a new mobility circulation depending on the capacities of the lines (501), the already existing hesitations (503) and the different ways the structure is working now in relation to its intersections (504). Also the rail lines are important objects that can introduce a dynamic along the line, such as the access to the bay and sea (502). The airport is added as an external element (that does have its repercussions on the roads).



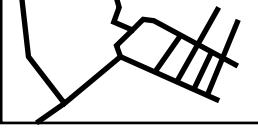
501. Flow-Road Width/Intensity



502. Flow-Directionality



503. Flow-Hesitations

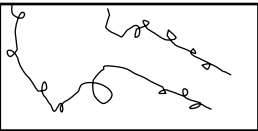


504. Circulation Structure

XL Scale Tissue

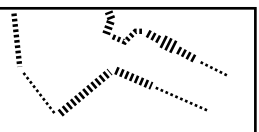


505. Address-Tissue

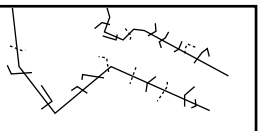


506. Address-XL/L Scale

Public Space Tissue



511. Space-Residues



515. Field-Edges



516. Field-Public/Private

All 16 talk about relation to road

Landscape

- Strategic Zone 1 Forrest area. Along the northern line, continuation of Via Rapida, there are in this zone many settlements that are grown with the forrest. There is a symbiosis. Along the N4, orchards can be found, but slowly, urbanization is eating away the possibility of enforcing this. This zone is to be kept free for a sustainable mixture of living, producing, consuming etc. where the trees are strategically used, not only for production or leisure, but for urbanization patterns as well. The large scale developments along the road will have to be stopped.
- 5 Also here along the Via Rapida, a lot of agriculture can already be seen. The conditions of the rivers that end up in the bay provide good conditions for growing crops. The edges of the area, the border with urbanization, can be densified to provide compensation for the zone that is kept free.

Urbanization

- Strategic Zone 2 The centers of Matóla and Machava that grow together and can consolidate. They therefore should grow intensively with the road to operate on the same scale as in the case of Maputo center.
- 3 Isolated tissue, very dependent of the road. The road should therefore provide in basic ammenities.
- 4 Isolated tissue, will change its orientation to clung onto the Machava center tissue.
- 7 Isolated tissue, consolidated, will be re-attached to road on the west side
- 6 Very dens informal settlements that have been 'cementized' in the last decades. There is a need to disconnect from the road and provide space for the tissue.
- 8 Commercial centre hub on service road, the presence of it creates a lot of informal activity in the area.
- 11 Consolidated Maputo center.
- 12 Concentration of harbor activities that should connect to road in a fluent and uninteruptive way.

- 9 The airport makes use of a large open flat stretch of land. The borders are very hard where landscape and urbanization meet.
- 10 Flood plane. Behind the dunes lies this flood plane that shows important wildlife and some agriculture activities. It can be used for touristic capacities as long as it is not invaded by buildings. The edges of the zone should be low profile to have a smoother transition between flood and city.

602. Strategic Zones

The territory shows qualities that define how landscape and urbanization could interact. 12 zones are defined according to dominance of landscape or urbanization and according to the way this dominance could lead to different relations to the road. Each zone as well has its way of bridging landscape and urbanization. This strategic reading does not implicate immediate change on larger scale (the structure is the reading itself), but reflects into the project.



Landscape vs. Urbanization

The lines cross areas that are more dominated by landscape or urbanization. The edges between them on a larger scale (this mapping was done on a smaller scale in analysis 'Field-Edges') raise important questions of how the transition should happen. This problematic is resolved in the definition of the Strategic Zones.

- Existing Structure

River

R1 = more sewage canal than river, is completely overgrown by tissue
R2,3,4 = cleaner and very strong river system with sometimes high amounts of water coming down that result in local and not so harmful floods.
- Drainage Canal

D2,3,4 = Drainage canals along the road on both sides, need capture basins to ensure continuous flow.

D5 = very large drainage and sewage canal coming from the center all the way to the basin. It has a continuous and high capacity of flow.

D1 = Drainage Canal that does not provide enough flow to be included in the system except than for its primary draining function.
- New Water Structure

Purification System

P1 = the combination of the 2 drainage canals along the road with the river that meets them results in a considerably sized water purification. It can function especially for the pure cleaning of the water before it is let loose into the bay. The river is not really considered river, more sewage line since it completely crosses a quite extensive urban tissue (the Matóla-Machava urban stretch).

P2 = the isolated tissue, most of it unplanned with lack of water provision, receives a clean water basin that is the result of the purification connected to the drainage canals.

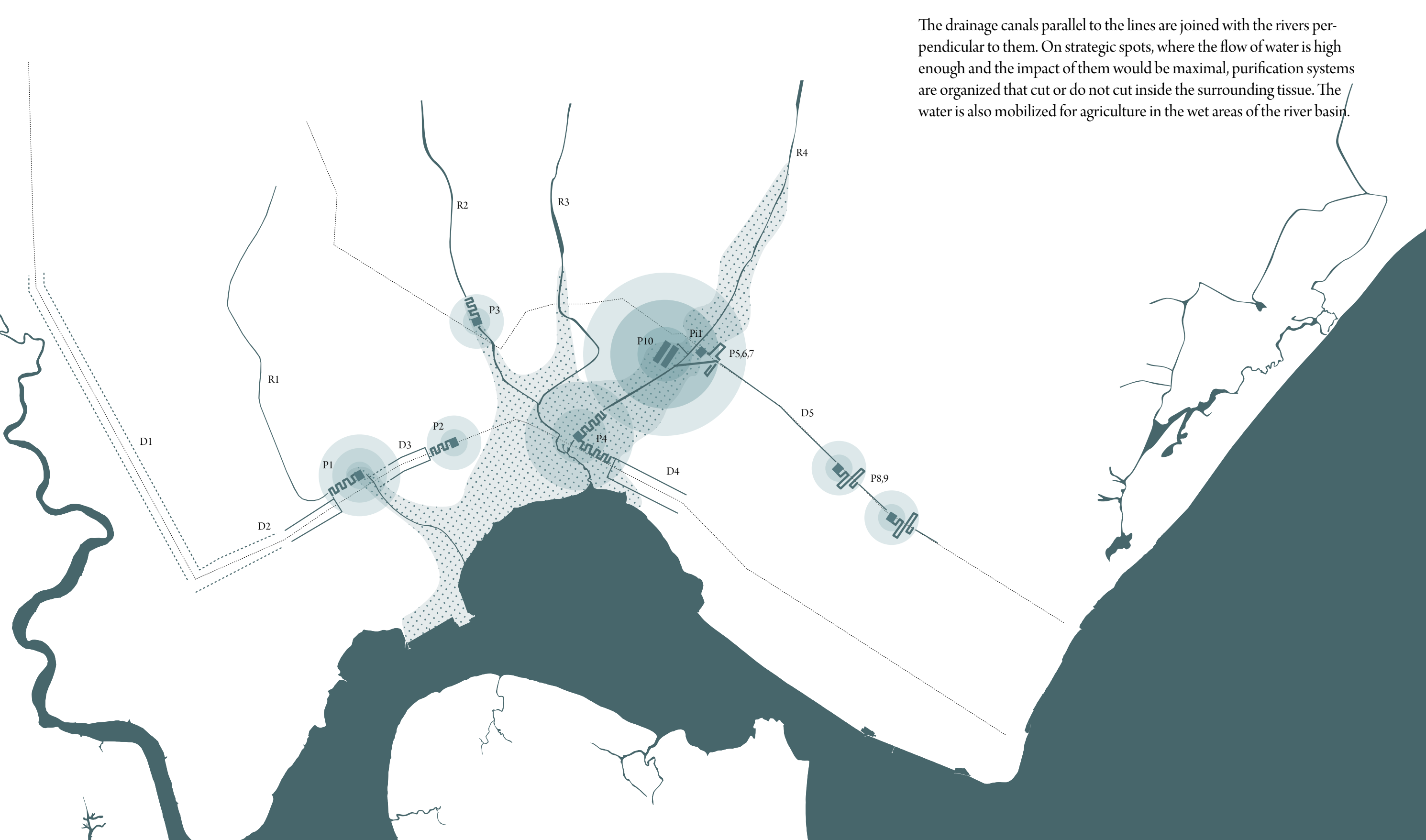
P3 = a water purification connected on of the river arms provides the isolated tissue on its right. By serving both that tissue and the Machava tissue, to a certain extent, it will bring the 2 together.

P4 = 2 purifications coming from the north and east in the lowest point of the basin bring ecological balance by not letting both drainage and river water end up polluted in the bay.

P5,6,7 = form a threesome of purifications on the end of the long drainage canal coming from the east that work on different scales and with different elements. One reaches inside the tissue for waste water exhausts, one for the waste water of the 2M beer factory and the other is related to the car maintenance platform next to it (washing, repairing etc.).

P8,9 are purifications that open up the tissue and treat with its waste water.

P10 is the large scale purification system in the river basin that provides on a larger scale. It will be formally connected to the river structure to ensure continuous water provision.
- Water pit system with a double function. Its main function is to provide locally water for agriculture in the river basin cultivation. It connects to the river as branches and can therefore also function as capacity holders in times of higher volumes of water. The waterpit system is already used in (Pi) and the system is then translated into the whole low lying plane.
- Water Provision Centrality

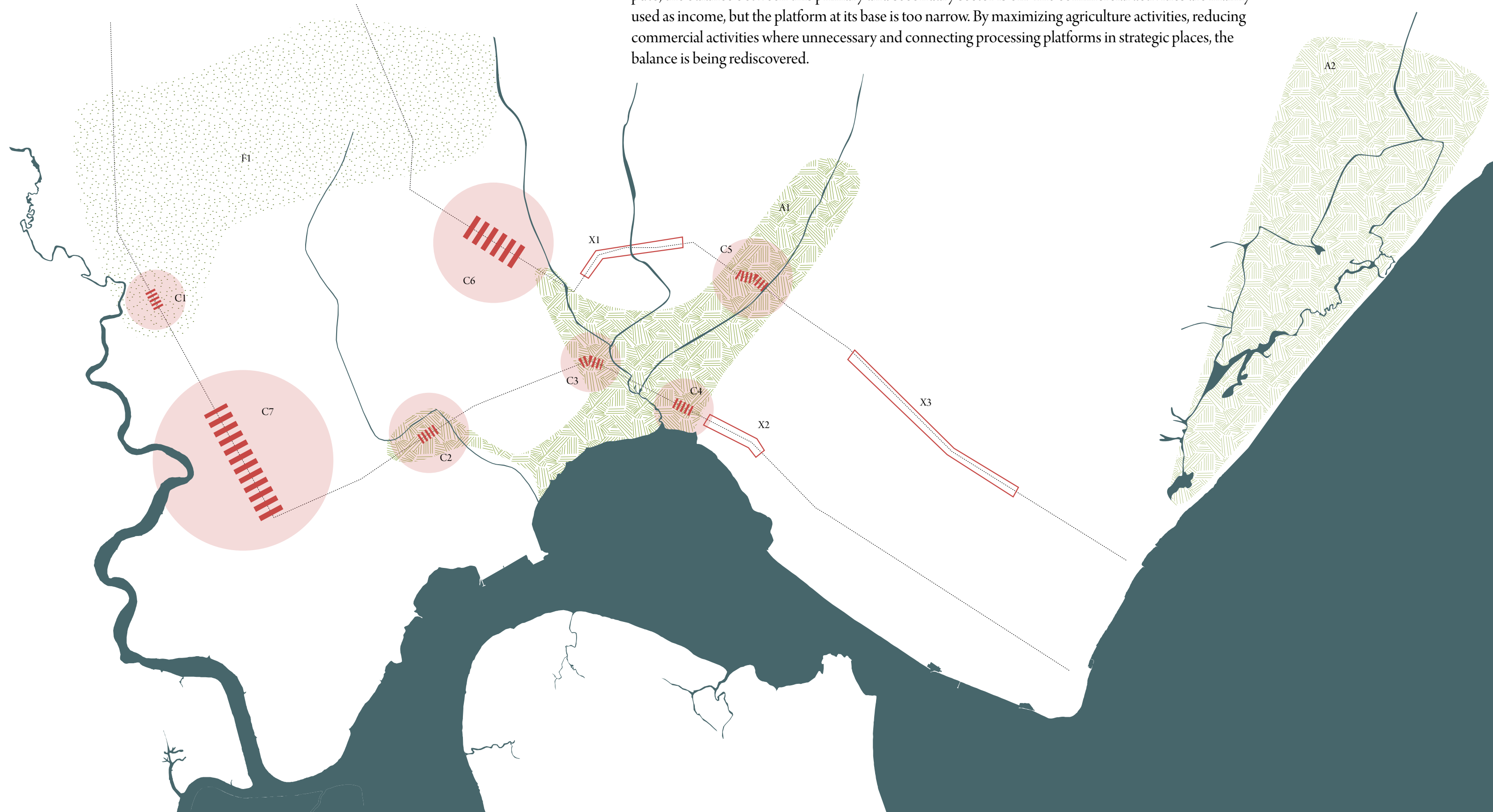



603. Water Strategy


The drainage canals parallel to the lines are joined with the rivers perpendicular to them. On strategic spots, where the flow of water is high enough and the impact of them would be maximal, purification systems are organized that cut or do not cut inside the surrounding tissue. The water is also mobilized for agriculture in the wet areas of the river basin.

X3= there is not enough space available around the road for commerce, but it still present resulting in chaotic situations. Or there is enough space for commerce, but disconnected and therefore useless. By entering the tissue, commerce can be pulled inside which leads to the decompression of overused edge space between tissue and road.

Moçambique as fragile economy needs to function on a primary level to be able to sustain itself. In Maputo, the balance between this primary and secondary sector is off. The commercial activities are mainly used as income, but the platform at its base is too narrow. By maximizing agriculture activities, reducing commercial activities where unnecessary and connecting processing platforms in strategic places, the balance is being rediscovered.



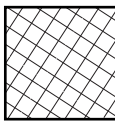
 Dens unplanned tissue that lacks public space. The only space available inside the tissue is the very narrow streets often used for water drainage, sewage drainage or garbage collection points. The strategy is to open up the tissue with new roads according to suitable paths that provide more space and can allow a new housing typology to connect to it. The housing typology is based on reducing the hard border between public and private and introducing an intermediate space as grey area where different activities can take place and which can function as additional 'public' space. This not only provides physical space, but also creates a mixture of activities in stead of only housing, and thus it increases the complexity inside the tissue.

 The hard edges between urbanization and agriculture are densified. The edges provide housing for workers on the field and compensates the unharvested urbanization capacity of the open agriculture terrains. It therefore forms a physical border for the urbanization that prevents it to further flow into unwanted areas.

E1= edge that goes along with a local planned densifiable tissue of smaller scale, the edge's density is related to the adjacent tissue scale and plot size.

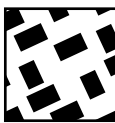
E2= larger scale and denser tissue and therefore also different tissue structure

E3,E4= edges that are more strips of development


 The tissue that already shows consolidated potential can densify more to become strong urban tissues.

U1 = Maputo Center, already consolidated (with a permeability inside the city block that needs to be preserved)


U2 = Matóla and Machava urban centers that can grow out to be a strong urban structure. It creates a dynamic along the road of dens, denser, empty, medium and dens to empty again type of tissue, with different experiences.

 Large scale tissue areas. These areas are completely organized accordingly in terms of accessibility, internal mobility, multi modality etc.

XL1= strong industry area of Matóla.
XL2= industry area of Maputo.

 Unplanned tissue that is attached to surrounding planned tissue or the road.

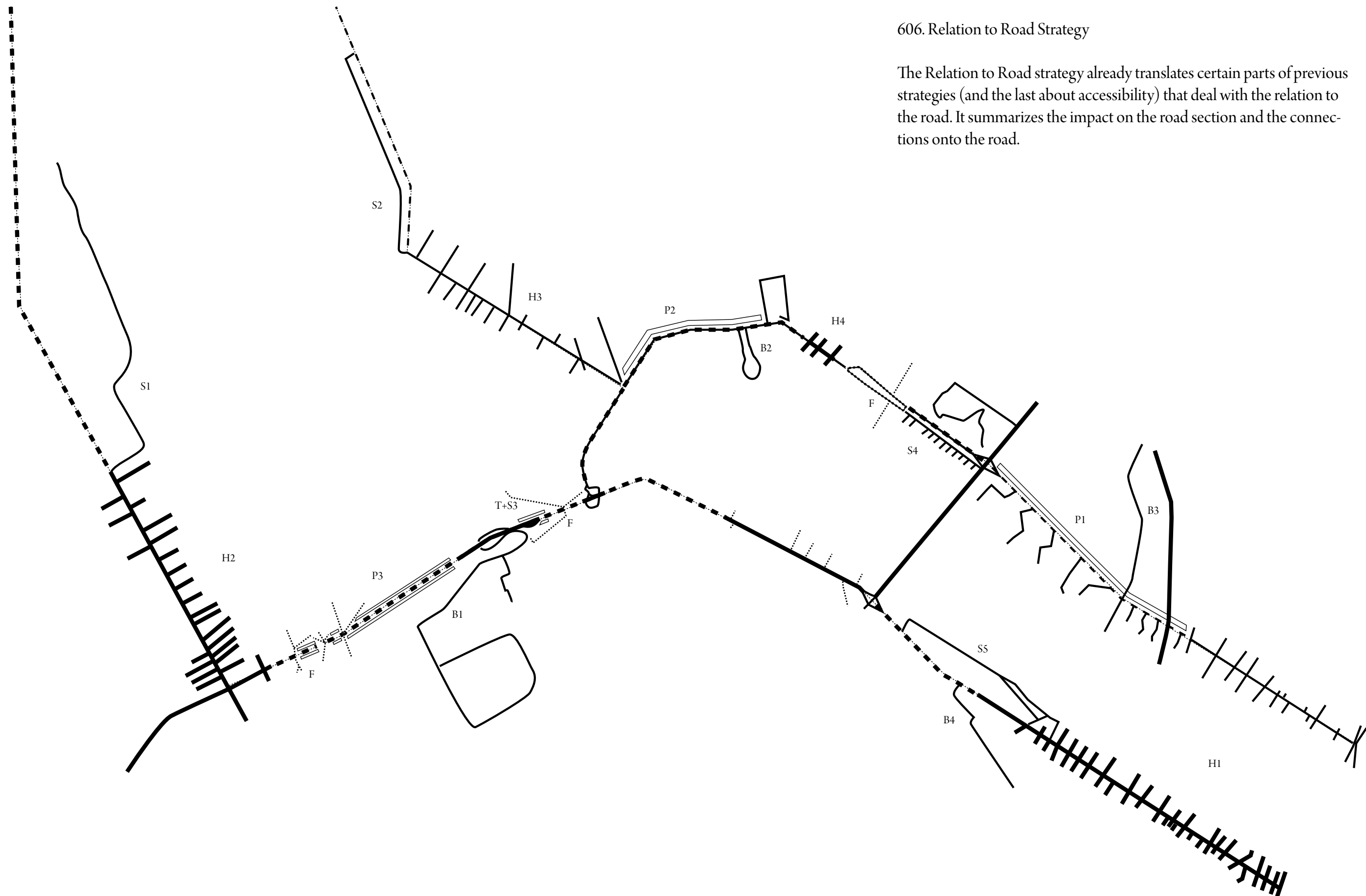
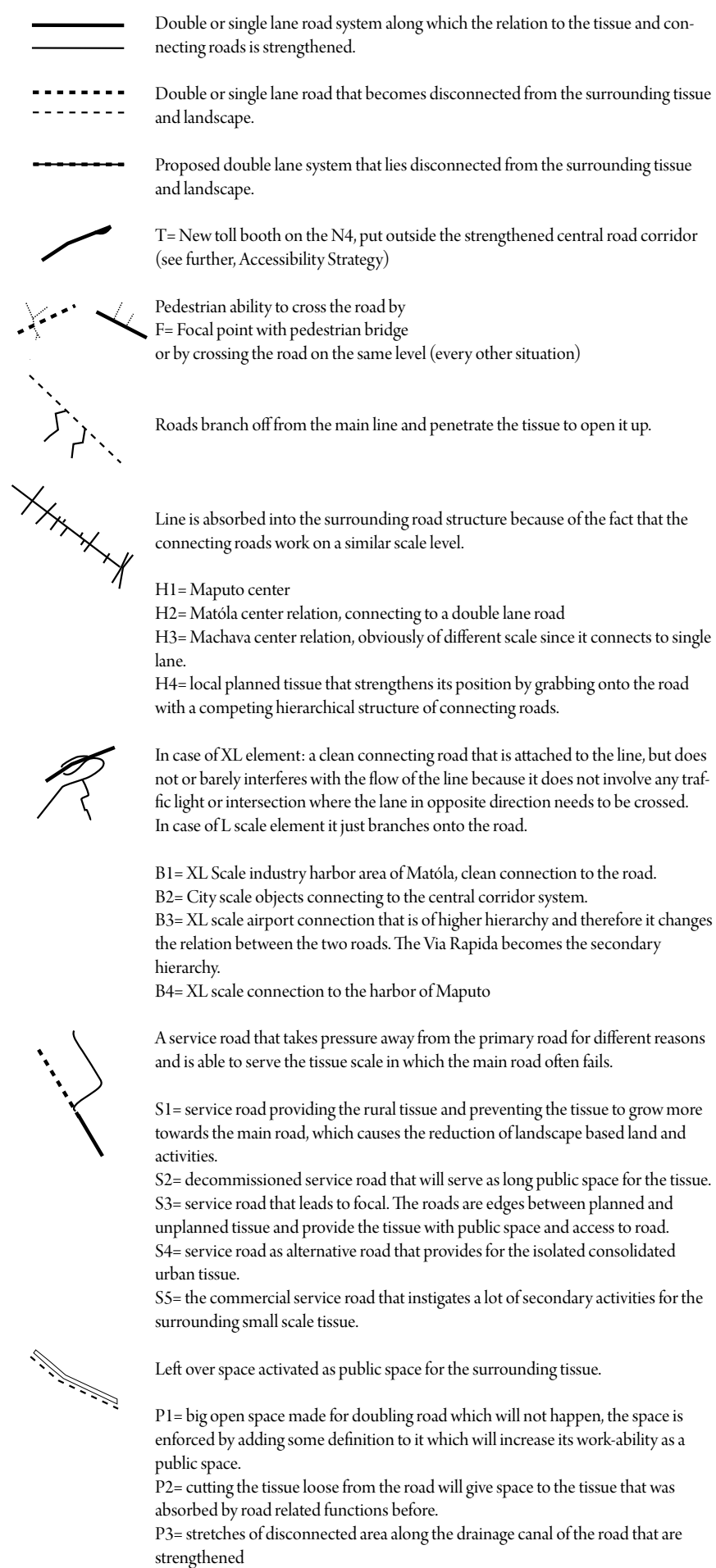
U1= tissue relating to Machava center
U2= strengthening the relation to the road

 Rural tissue with low density. The tissue is grown very tightly with the landscape elements, albeit normal tree area with small green hedge (R1) or in relation to productive tree areas (R2).



605. Urbanization Strategy

The definition of zones of urbanization leads to some concepts of how to deal with the built environment now. The strategy improves the current conditions of the tissue. Although some strategies are quite general in its definition, there are always specific effects on the way the road and the tissue relate. It also shows how future expansion of the city can go along with the proposed changes.



606. Relation to Road Strategy

The Relation to Road strategy already translates certain parts of previous strategies (and the last about accessibility) that deal with the relation to the road. It summarizes the impact on the road section and the connections onto the road.

- (S1+(A1+C1))

The proven potential for orchards is furtherly enhanced and results in a tight relation between tissue and trees with a processing platform for dealing with the production.
- (S2+C2)

The center cores of Matóla and Machava can consolidate and grow completely together with the road as in center Maputo, together they form a complex urban structure that absorbs other activities such as the nearby commercial.
- ((A2+C5)+W3)

The big agriculture structure crosses the lines in several places and is enforced by handling the water structure. In these places processing platforms are attached so that the agriculture area benefits maximally from the presence of the lines.
- ((A2+C4)+W2)
- ((A2+C3)+W1)
- (XL1)

The existing double cored industry is blended together to function better as a whole in terms of logistics and mobility.
- (S3+W4)

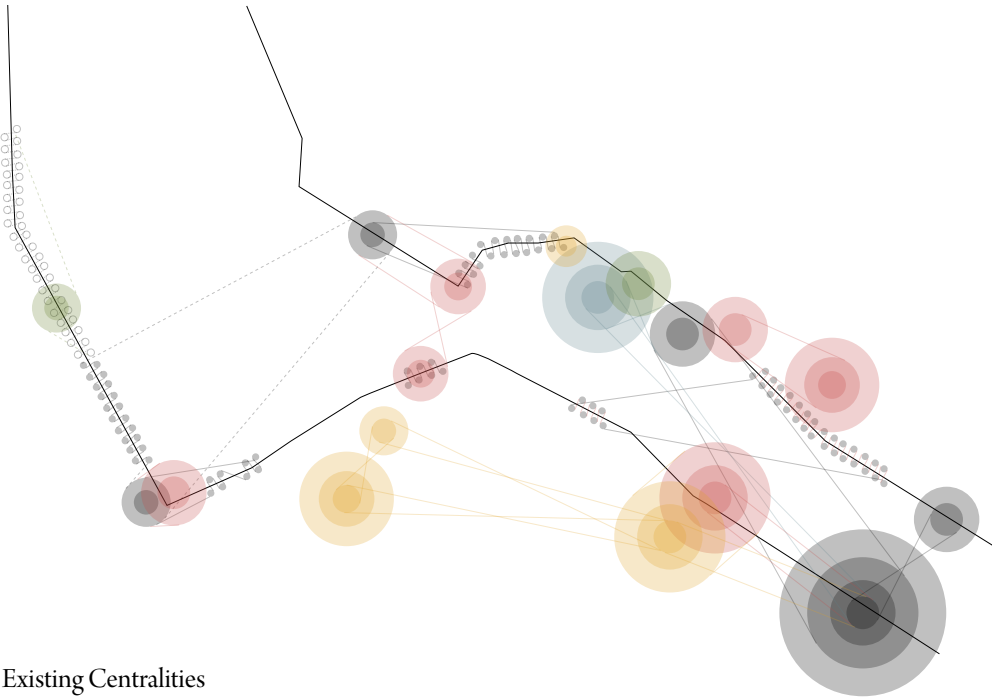
The tissue grabs onto the road and beenfits from its capacities. The water purification can provide for surrounding tissue.
- (XL2)

Large city scale functions can connect along this stretch of the road.
- ((S4+C6)+W5)

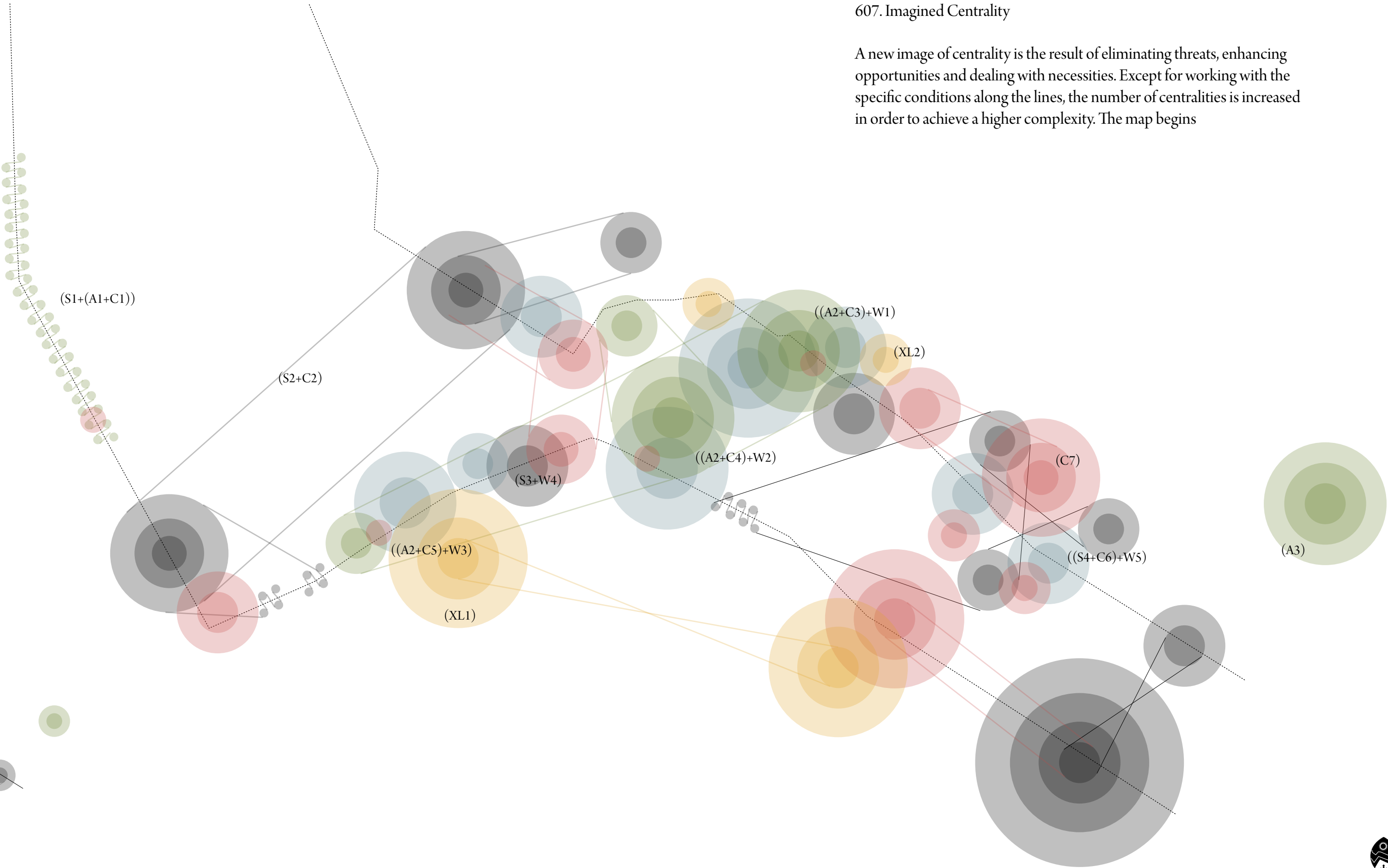
The dens urban tissue is cut loose from its dependency of the road by penetrating and opening up the tissue. A new typology is introduced that allows semi public activities. These actions draw the commercial activities inside the tissue. The waste water drainage with purification is used to compensate the lack of water in the unplanned tissue.
- (C7)

Strengthening the corridor towards the airport with commercial activities.
- (A3)

The low lying flood plane with agriculture activities is balanced with the water experience and tourism attraction (for wildlife observation).



Existing Centralities



607. Imagined Centrality

A new image of centrality is the result of eliminating threats, enhancing opportunities and dealing with necessities. Except for working with the specific conditions along the lines, the number of centralities is increased in order to achieve a higher complexity. The map begins

608. Accessibility Strategy

A central corridor drastically changes the idea of mobility in the Maputo area. Not only in terms of mobility, but also in terms of perceiving the metropolitan area. The 'central' corridor is very ex-central compared to the original city center and crosses the basin of the river that forms the administrative border between Maputo, Machava and Matóla and mentally staples them together. By adding the other modalities relating to the road structure, the lines change their status to become more diverse in experience and therefore generates new dynamics.

-
- Effect of other modality connectivity on the lines.
-
- R1= existing rail station in Maputo
R2= new pole of rail station interaction with road around Machava center
- W1= existing harbor activities of Maputo
W2= ferry connection to Catembe
W3= existing harbor of Matóla, enforced also with public transport ferry to reduce the movement over road.
W4= the Via Rapida actually open up to the sea and offers the possibility of having an interesting sea relation with ferry dock
- A1= airport connections entering the Via Rapida and influencing the surrounding scale
- Road Structure changes
-
- Double lane central corridor improving the north south and east west movement. This movement is already done on roads of poor condition and influencing the surroundings. The corridor improves the movement and the disconnection of the road along most of its path smoothens this. This concepts solves some of the traffic problems that the roads are facing.
-
- The other parts of the road connect to it like octopus arms,, spreading in different possible directions.
-
- There is the possibility of also constructing a new arm that leads by bridge to Catembe.





Chapter 7. Play

Children find enormous potential for kite flying on the large and windy open space of the new and increasing infrastructure development: the road.

Several strategies were the result of recombining the 16 analysis maps. They structure the urban system around the lines and thus project conditions on the lines and their vicinity. To prove the validity of the strategies, they need to be tested on site to evaluate the extent in which the local and strategical constraints blend together.

4 sites were chosen with very diverse constraints, 2 on each line, 2 in urbanization dominance, 2 in landscape dominance and each with their own special character for which the project receives its name. These names demonstrate and put stress on the fact that the approach of dealing with the lines has changed. Where before the lines were considered to be the constant along which variables, different relations and structures, could be read (16 analysis maps), now the tables have turned.

The strategies were the tools to break those lines from their rigid character. From being the element of study, over a reinterpretation of those results into other ways of looking at the lines as a structure, it results in where the line stops being a constant, but starts operating as a variable that changes according to another constant.

The project names, the constants:

- A. Agri Project
- B. Public Space Project
- C. Forest Project
- D. Isolate Project

The functioning, appearance and impact of the line will change to accommodate the identity of the surroundings.



A. Agri Project

1. Existing Situation

The site is located in the heart of the Infulene river basin and is now already partially functioning as the crop growing epicenter of Maputo, although unstructured and not completely efficient.

The agriculture area is under constant pressure from informal and formal settlement dynamics on both sides of the basin since there is no life threatening fear of flood. The crop fields are being maintained with the use of shallow water pits. These can store rainwater and be activated for constant irrigation. These pits can be integrated in a system of water provision for agriculture connected to the river. Each pit can contribute in decompressing high volumes of water in times of heavy rains. In fact, two water systems meet on the site: The river and a large scale drainage canal coming from the city center. Both join in the site, making a strategy for dealing with this junction very necessary.

The construction of the Via Rapida, designed to be a 4 lane road but never completely executed, lead to the disconnection of a parallel road. They come together as well on our site, the northern road, Via Rapida, serves as passage road while the other one, although furnished with lighting, is in degraded condition.

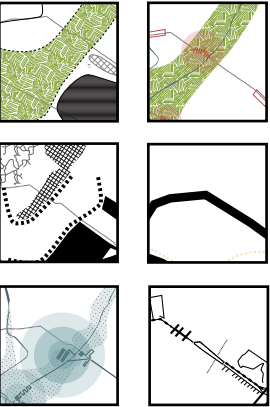
Combining the strategy implications and these local constraints leads to a set of concepts and the proposed design for the site.



Aerial of Agri Site



2. Concepts



The site is part of the big agriculture landscape zone. It is organized for crop growing and the edges become densified lines that can keep the crop growing plots from being invaded. The density that is reached on the edges can be seen as if the urbanized agriculture area would be wiped onto those edges.

The water pits are included in the valley structure. The drainage ends up in a water purification that can provide clean water on the local scale, for the surrounding unplanned tissues that show a lack of water accessibility. After the cleaning, the drainage system can flow with the river to the N4 line where it can also be used for agriculture.

A trading platform is added with commercial dynamics. Except for providing the platform to move and sell the harvest, there is also place for local capacity building with information centers and seed provision.

The road in this site is part of the 'central corridor' and the road capacity has to be doubled from 2 to 4 lanes to achieve a higher flow capacity.

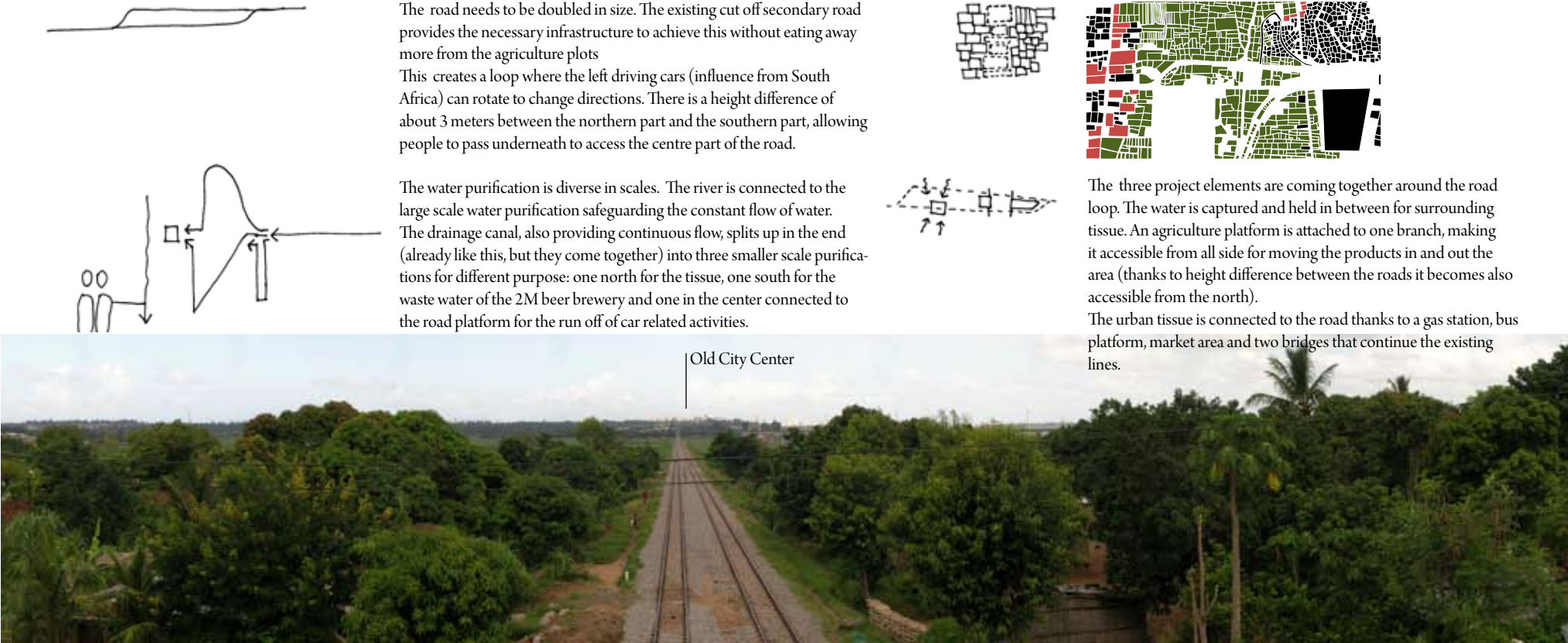
The constraints on the left together with the existing conditions on site result in the following concepts:

Three important system come together in the site: agriculture, urbanization and water structure. Each of them will have a specific relation with one another and all come together in the road.

The edge between urbanization and the agriculture is achieved by allowing the plots to meet. According to the size of both crop plots and building plots, new building plots fit in between. The optimal density can be reached by doubling the ratio of building plot/building envelope and by growing vertically according to what the building envelope allows. The tissue becomes then an end extension of the characteristics of the bordering tissue. The extension still relates to the scale of its surroundings.

The water purification is organized for three purposes in relation to urbanization: purify for water provision in unplanned areas, organizing waste capture through it and border off the tissue from agriculture plots. The river structure is connected to the water pits which makes the link with the agriculture.

The view from the river plane towards the old city center is amazing and should be taken in account in the architectural development of the edge plots.



0m

1300m



625m

4. Image



B. Public Space Project

1. Existing Situation

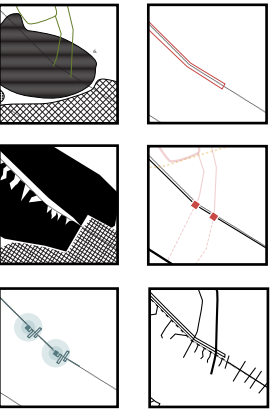
This site is dominated by the differences between open space, public space and dense and quite impermeable tissue. The northern part of the road is characterized by the huge open space along the road that was to become the second 2 lane direction. Since it was never executed, this space casually functions as public space for the surrounding tissue, although it only appears to be working well on the edge, close to points of increased activity.

The southern part of the road, where it is actually accessible, a dense tissue is closely connected to it which only allows pedestrian penetration. The activities are therefore concentrated on the very narrow leftover space in between and with the confusion of the car flow stopping on the road for interaction with the tissue, this area becomes problematic.

The drainage canal next to the road, in between the before mentioned parts, acts as a giant disconnecter which results in the noticeable characteristics. The underdefined open space due to lack of accessibility and the concentration on the other side.



2. Concepts



The site is located inside the very broad new tissue of the Caniço that is no longer just reed houses, but cement ones. The density is very high and the tissue needs to be opened up in terms of access so that activities can happen inside it. This should result in the decompression of road environment.

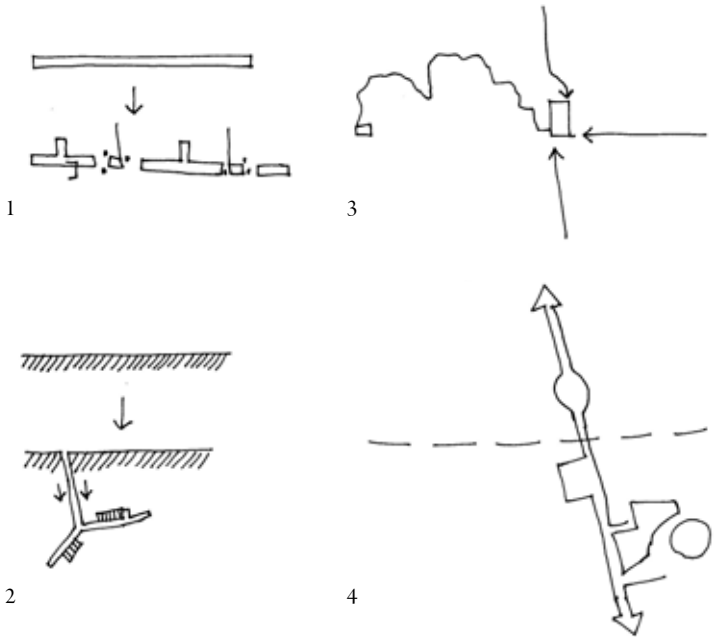
The tissue will be made more permeable by creating wider streets inside. A new typology can then be inserted to provide more diversity in space so that different activities can happen.

A water purification will be connected to the drainage canal and can cut inside the northern tissue to open up the tissue and provide basic sewage.

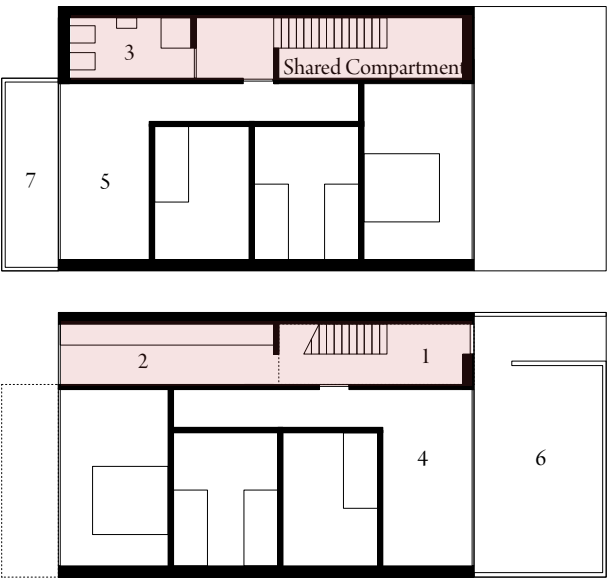
There is a lack of functioning public space on both parts of the road. On one side, the space is available but not well managed, mainly because of its uncertain future, whether or not it will be part of the road development. This decision has been taken according to the accessibility strategy and can now be charged and connected with its surroundings so that it becomes truly functional.

The open space becomes charged with more defined elements, some urbanization that spills out onto the open space, 'designed' sports facility (basically two goals opposing each other) and bridge connections (1). On the other side, open space is identified and strengthened by roads that connect them and large scale elements that float inside the tissue. A typology is inserted that opens up the tissue even more (2). Water Purification: three drainage canals join together and are captured along the road. The purification then cuts through the tissue to provide for it (3). The connection to the airport creates a higher scale dynamic (4).

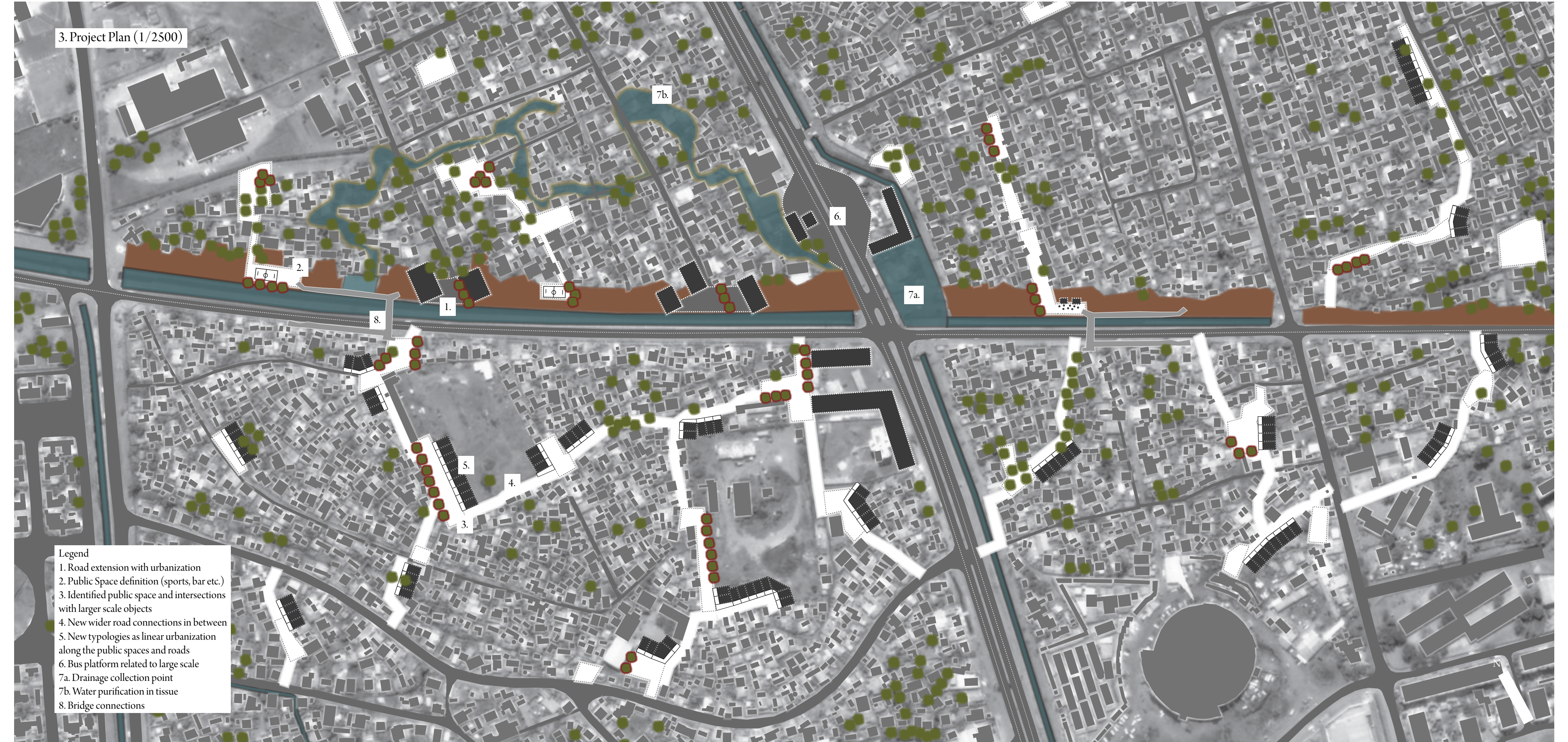
The typology is designed for two families that share bathroom and kitchen (as can be considered usual). The kitchen is closely related to the back garden. Sharing the services creates the possibility for both to cross the house completely. A front garden as semi public private space allows internalized commerce, a bar etc. It increases the area of public space.



- 1 Entrance Hall
- 2 Kitchen
- 3 Bathroom
- 4 Ground floor unit related with front garden
- 5 First floor unit related with balcony
- 6 Front Garden
- 7 Balcony



3. Project Plan (1/2500)



- Legend
- 1. Road extension with urbanization
 - 2. Public Space definition (sports, bar etc.)
 - 3. Identified public space and intersections with larger scale objects
 - 4. New wider road connections in between
 - 5. New typologies as linear urbanization along the public spaces and roads
 - 6. Bus platform related to large scale
 - 7a. Drainage collection point
 - 7b. Water purification in tissue
 - 8. Bridge connections

4. Image



More defined Public Space

New Inserted Typology

Water Purification

Pedestrian Crossing Bridge

C. Forest Project

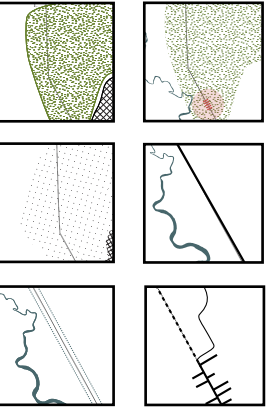
1. Existing Situation

This site is situated furthest away from the city and has a very rural character. The new N4 concession cuts through a fairly un-urbanized area that is receiving increasing attention because of the presence of the road. The road is here over dimensioned causing also very large scale development. The small scale tissue does not stand a chance against the nowadays common Chinese investments. The condominium is the most obvious result except for other larger scale functions such as main seat of Jehovas’ Witness in Moçambique.

The area shows some smaller scale elements that are threatened to disappear. The urbanization is a low density rural tissue that has a close relation to natural elements. Agriculture on private property and along public spaces is common. This zone does not have easy access to water since the river runs parallel in the river basin resulting in agriculture that is less water dependent, or water use intensive: some orchards, organized tree growing for fruit, was found.



2. Concepts



The main concern is related to the loss of the smaller scale tissue and its rural characteristics. The road is very recent and the upcoming pressure of investment can still be diverted with appropriate actions.

The project is situated in the ‘Forest’ strategic zone since it shows potential for the same condition found along the other line where the tissue has a tight relation with the forest. An afforestation, financial aid from environmental actors as WWF etc, with a rural typology is wished for.

A platform along the road is provided to establish once more the necessary knowledge capacity to trigger the project and to later on also have commercial potential.

Except for promoting the smaller scale development, a service road will provide connectivity and functions for the upcoming planned grid structure from Machava-Matola that is growing towards the road.

Moçambique deals with a serious problem in deforestation due to the small scale dependability of forest for many reason: firewood, charcoal, fruits, honey, medicine, symbolic etc. 4 layers will be proposed for changing the area in its benefit:

1. Firewood layer: 85 percent of people in Moçambique get their energy from burning wood. Trees used are the Msasa and Mnondo. Since they are so important, in a first design step, the whole territory that is not taken in by large scale elements will be filled with mixture trees - urban tissue.

2. Orchard: some organized tree growing patches are retained and added to form the end points of paths that originally connected to the road, but now are more related to the service road. They will provide fruit supply to the city markets and local trading centers

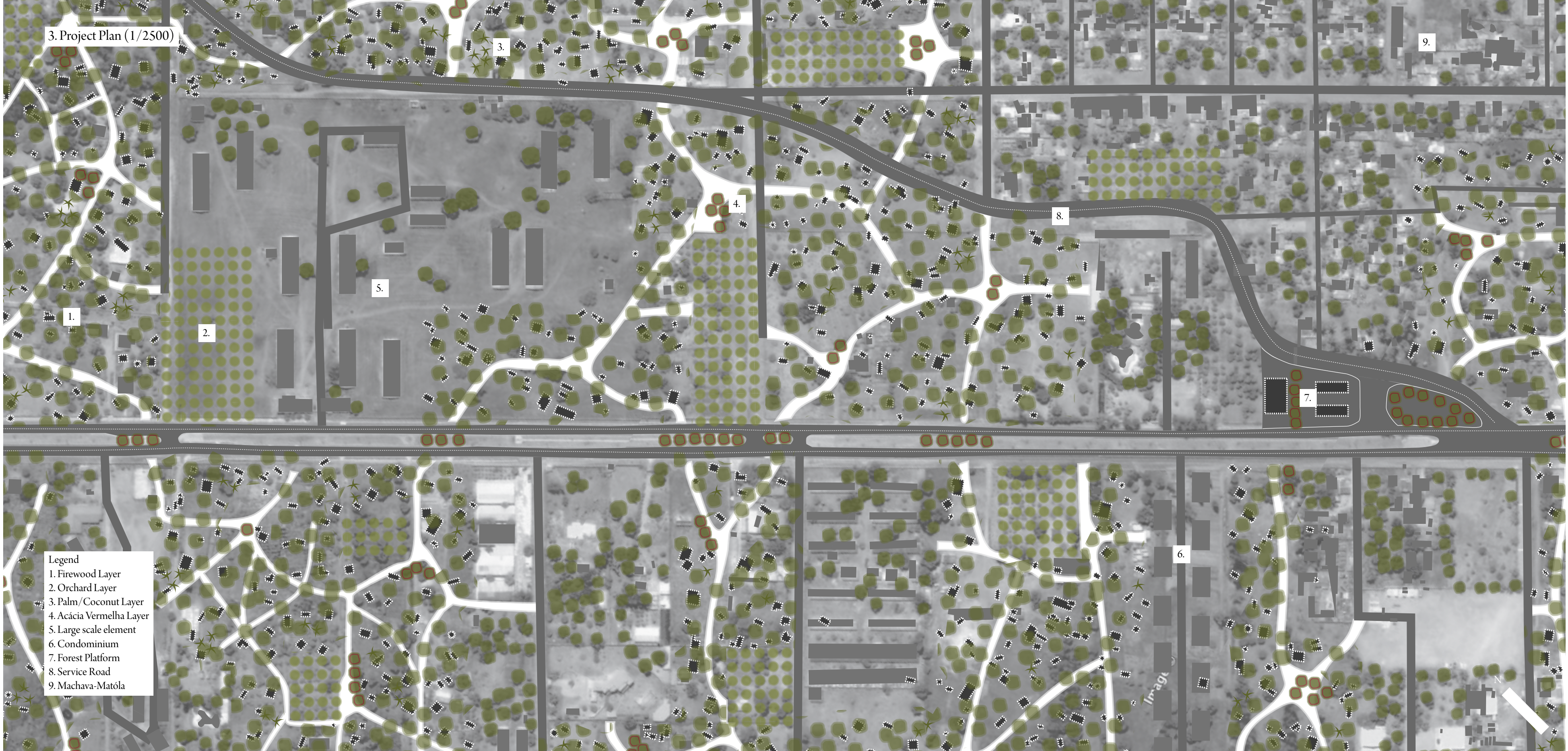
3. Palm / Coconut tree, these trees are mostly used in more private spaces and become patches spread in between.

4. Acacia Vermelha: it is the tree that gives its name to Maputo, the fire tree city (because of its beautiful red flowers). This tree has symbolic meaning and will reinforce important intersections, platforms etc. This site becomes part of Maputo.

TREE	Msasa (<i>Brachystegia spiciformis</i>) Mnondo (<i>Julbernardia globiflora</i>)	Mangueira (<i>Mangifera indica L.</i>) Arvore de Cajú (<i>Anacardium occidentale L.</i>)	Palmeira (<i>Phoenix dactylifera L.</i>) Coqueiro (<i>Cocos nucifera</i>)	Acácia Vermelha (<i>Delonix Regia L.</i>) (Acácia Amarela) (<i>Acacia farnesiana</i>)
USE	Firewood Charcoal	Mango Cashew	Charcoal Coconut Construction poles	Recognition Shade
IMAGE				
URBAN STRUCTURE/ LAYER				

0m

1300m





Stacked firewood ready for use

Acácia Vermelha with water provision, public space intersection

Orchard

More privately used palmeira

D. Isolate Project

1. Existing Situation

The site shows very different conditions, from planned to unplanned tissue, being the focal point the pedestrian bridge over the road and large scale industry on the west side.

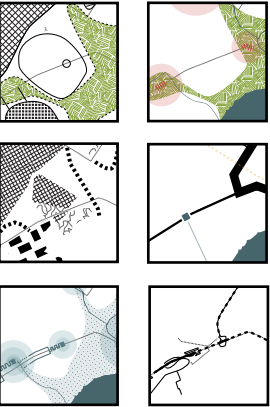
The tissue depends in a great matter from the pedestrian bridge. In that point there is a great dynamic of movement and activities of different kind, but the dominating one is commerce. The bridge is so important since it is the site's only connection with the larger scale areas and the city of Maputo in general.

Here, one of the phenomena described in the analysis is very obvious: the edge between the planned and the unplanned tissue becomes an important meeting point and public space for both. The planned areas are very much based on shielding the house from the exterior, has it occurs in Johannesburg, leaving almost no intermediate spaces. In addition, all space is as much as possible economically consumed leaving no public space. In the unplanned areas there are more semi-public spaces, but they use the edge of the planned to access other amenities (schools, road etc.)

Important to notice as well is the presence of informal relations between the road and the fabric, mainly the two gas stations. This movement also allows trucks to pass the small scale road, leading to collisions and trucks occupying space for the tissue.



2. Concepts



This zone is disconnected from the other urban tissues, therefore 'isolate', and this leads to energizing the road so that it can discharge as a center unit for its surroundings. An important play can be formed by adding new tissue that balances the amount of urbanization on both sides of the road, leading to a reversed mirror image.

The road itself receives here the new toll boot. The toll will no longer be charged inside the central corridor system, but between the corridor and the large scale industry of Matóla. An industry may doubt between the Maputo harbour in the center or the harbour in Matóla, which prevents intrusion of trucks deeper inside already congested areas. By not raising toll before the Matóla area, this action is enforced.

The drainage canals lead here to a water purification system along the road and providing the unplanned tissue with clean water.

This zone will provide for itself by clinging onto the road. Several elements are introduced.

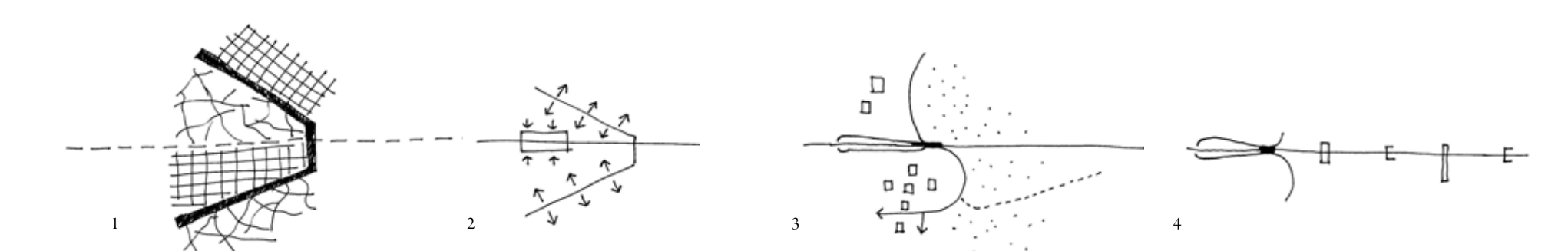
The public edge condition is imagined to run across the existing bridge into another edge. By inserting a (planned) tissue, it is expected that a similar phenomenon will be seen on that edge. (1)

In between this public space, another one is inserted with a dynamic that does not work on the local tissue scale, but upper local. It can house function related to the toll boot, but also administrative entities for neighboring industry. The presence of these functions in relation with the tissue creates an interesting dynamic between them.(2)

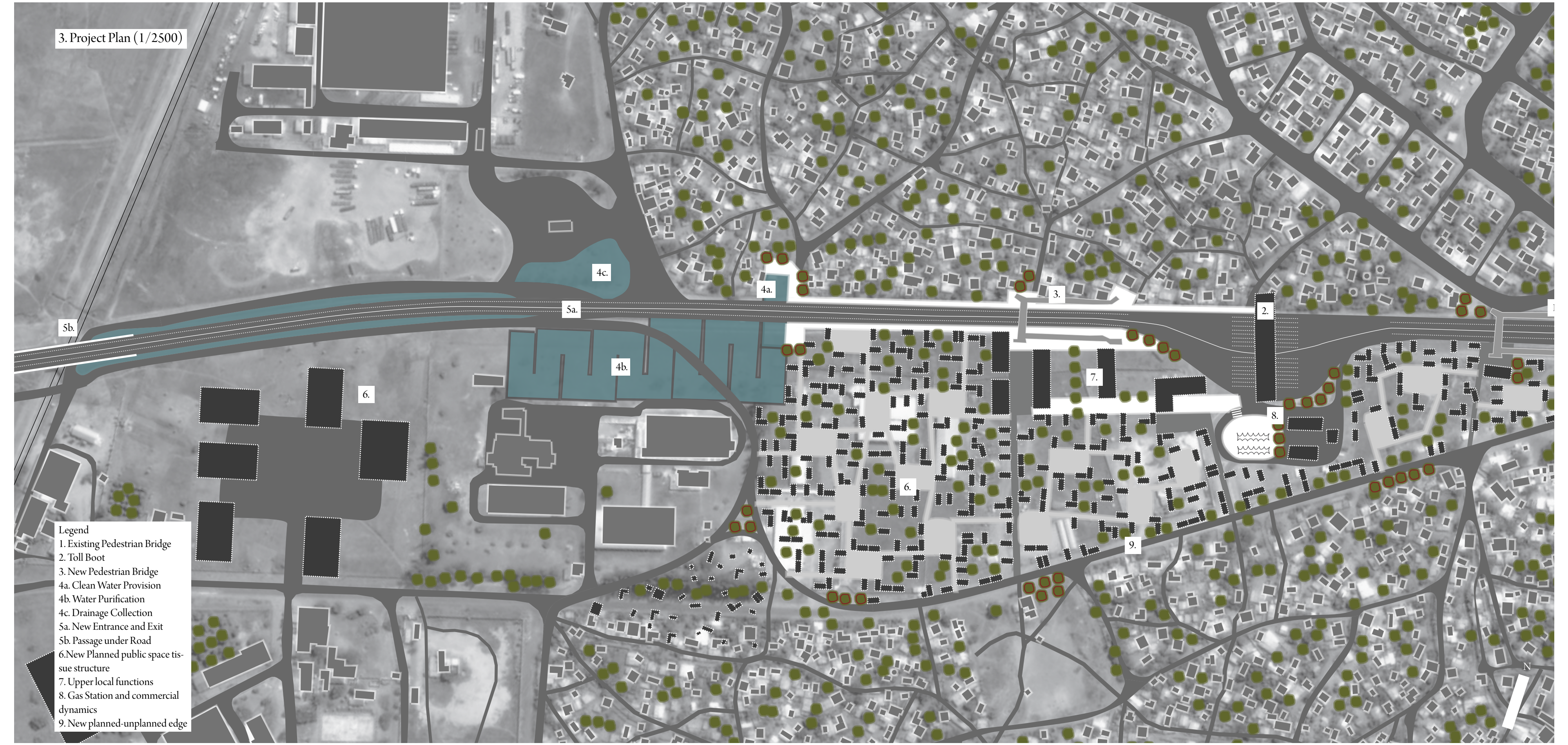
A new entrance and exit connection system is introduced that eliminates the traffic light crossing towards the west and therefore smoothen the flow. The trucks, that can reach the entire Matóla industry, do not have to pass the flow, but pass underneath the road along with the railway. The new system also relieves the local road, now edge between planned and unplanned, from the truck occupancy. (3)

The new road connection for industry, the water purification providing on both sides of the road, a new bridge connection connected to public space, the toll boot and the existing bridge connection accomplish the tight relation that is established for the area. (4)

The zone also has a beautiful view on the bay and old city center. (5)



3. Project Plan (1/2500)



- Legend
- 1. Existing Pedestrian Bridge
 - 2. Toll Boot
 - 3. New Pedestrian Bridge
 - 4a. Clean Water Provision
 - 4b. Water Purification
 - 4c. Drainage Collection
 - 5a. New Entrance and Exit
 - 5b. Passage under Road
 - 6. New Planned public space tissue structure
 - 7. Upper local functions
 - 8. Gas Station and commercial dynamics
 - 9. New planned-unplanned edge

4. Image

Upper Local functions

Toll House

Local Public Space Connector

View from pedestrian bridge



Chapter 8. Closing Notes

A quest was started. But unlike any other, there was no real goal but to try and understand Maputo and act in it accordingly. Two roads, lines, came forward as important axes in the city that provided a new frame to think about changing centralities since they only emerged in their current form over the past couple of years. This specific point of view fitted perfectly in the expanding Maputo that is in search for its identity and next to developing some ideas regarding the lines, the city would be looked upon through a new set of glasses. As said before, there was no way in predicting where this would lead to.

Four weeks of intensive fieldwork resulted in massive amounts of information that needed to be streamlined in order to become understandable. The key to surpass this impasse was to structure the acquired information through the previously done theoretical frame, with the 16 analysis maps as the result. These maps give the first insights into the dynamics of Maputo as a metropolis and what the influence of the lines on this image is and can be. The lines, the N4 to Johannesburg and the Via Rapida and its extension, were considered constants along which different variables were investigated.

The validity of looking at the city through the lines was confirmed by the fact that general issues that live in the city came forward in the analysis. It seemed that whatever issue is raised in the city, the lines would run across it: the formal versus informal, large scale mo-

tion versus small scale, open space versus dens urban tissue, center versus periphery, landscape versus urbanization and more general concepts as deforestation, accessibility to car and public transport, economic dependability etc. Yet, putting the finger on the issues by considering the lines as a constant was not the real challenge. It became interesting at the point that these lines were to prove that the relation with all these issues is not just a consequence of dynamics beyond the reach of the lines, but that the lines are part of the cause of this urban motion.

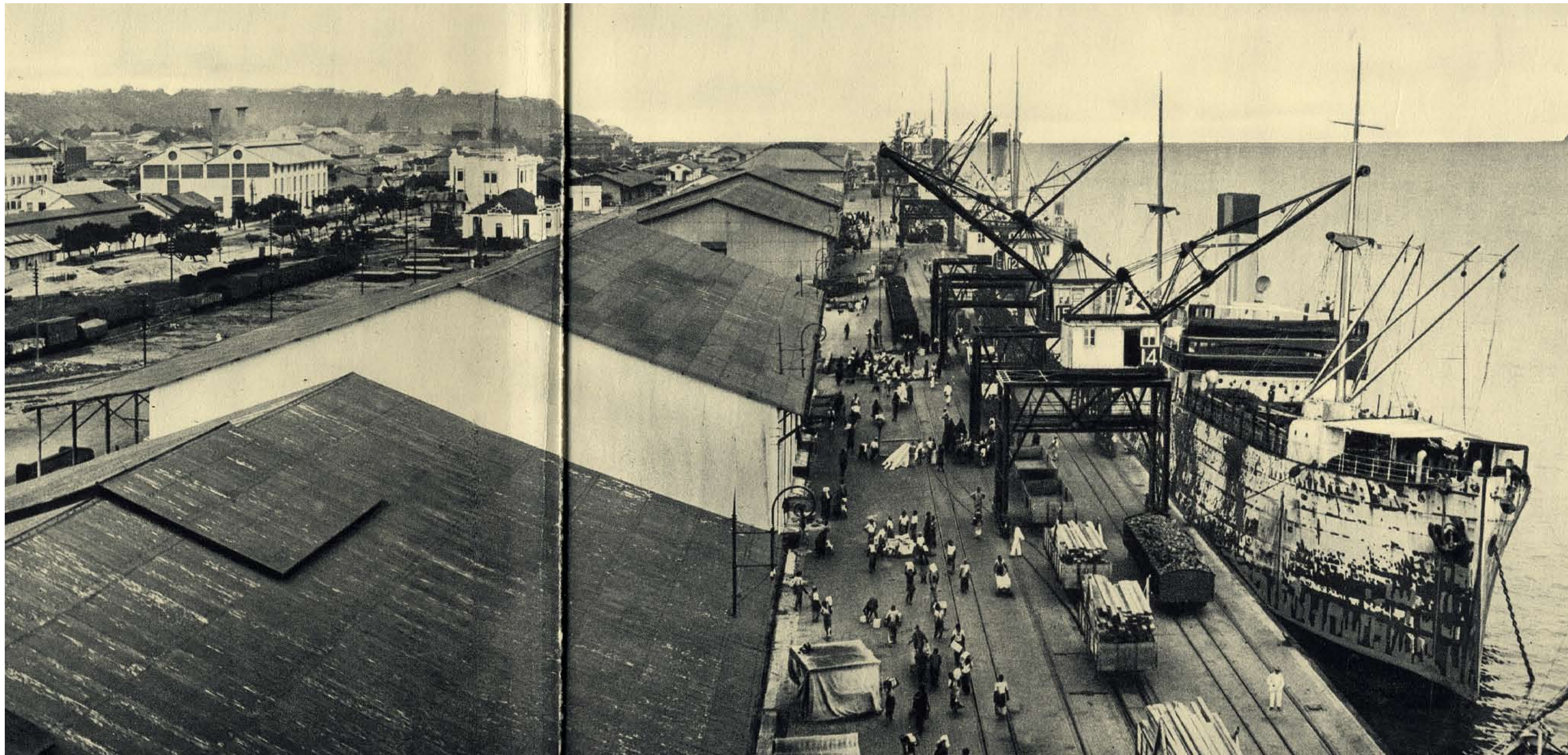
The lines could go from being constants to being variables. By making several assumptions on what the Maputo metropolis could look like, general strategies were developed to introduce changes along the lines. These changes are very detailed and the result of a careful recombination of the analysis maps. By overlapping them as layers, metropolitan structures became apparent that could be enforced by specific adjustments on the lines. The strategies would completely change the reading of the city, not just the way the lines operate in the territory, but how the city becomes a metropolis of changing centralities.

The strategies gently suggest that the lines become variables. The relation of the lines to several urban concepts was proven, but the strategies do not prove the capacity of the lines to become variables and to adapt to certain situations. They only frame it. To test the capacity of the lines, 4 zooms were developed where a certain speci-

ficity of the place came out of the dynamics in centralities: agriculture, public space, forest and isolate were chosen. On this scale the adaptability of the lines would be tested.

For each of the four conditions, the lines were able to form a bridge between local conditions, strategy constraints and exposed existing relations between the lines and their surroundings. The lines change drastically in its characteristics related to its environment for each project, proving its flexibility and capacity of being a variable and influencing the metropolitan Maputo. Although the 4 line alterations are very different, it is very exciting to realize that in each project almost all general issues mentioned before (planned-unplanned, XL/S etc.), are present and reflected in the site specific context. The lines have become true tools and impressive actors in Maputo.





Lourenço Marques in the beginning of the 20th century. The thriving harbour area is one of the main reasons of existence and success of Lourenço Marques. (Image from Lourenço Marques: panoramas da cidade volume 1)

Chapter 9. Dynamics of Centrality

The goal of this chapter is to establish an understanding of the different meaningful places in contemporary Maputo. These places form a complex structure of snapshots in time, a secondary organizing element next to the grid road structure. Along its more than 100 year history Maputo, before Lourenço Marques, different places have acquired different levels of importance. They now form cardinal points that highlight the development of the city. These elements of centrality will be investigated throughout the history of Maputo. The changes that can be noted will then be used as tools for creating meaningful spaces in metropolitan Maputo (chapters 3 to 8).

The physical growth of a city and the map that architect, urbanists, geographers and engineers are used to make to represent the city does not necessarily represent the actual perception and condition of the urban life that takes place in this stage called ‘the City’. People give different meanings to one and the same space. This confluence of meanings creates the mental image of concentrations of activities perceived and appreciated as ‘centers’ in the city. In this case, the definition of the center would be be the space that can represent something to a relatively spoken higher number of citizens. This approach of looking at the city requires an investigation built on experiences and an understanding of what spaces can mean outside their basic conceptualization of urban meeting point. The walls of the fortress as ‘vitrine’ for sellers, the shade of the trees on the central square that provides perfect cover for an afternoon nap while the wide roads surrounding the squares allow cars to come

Image 1.



to a stop for all sorts of activities as loading/unloading, repairing, etc. The city is the confluence of order and chaos, of equality and centrality that do not occupy fixed positions in time, but is submissive to constant dynamics.

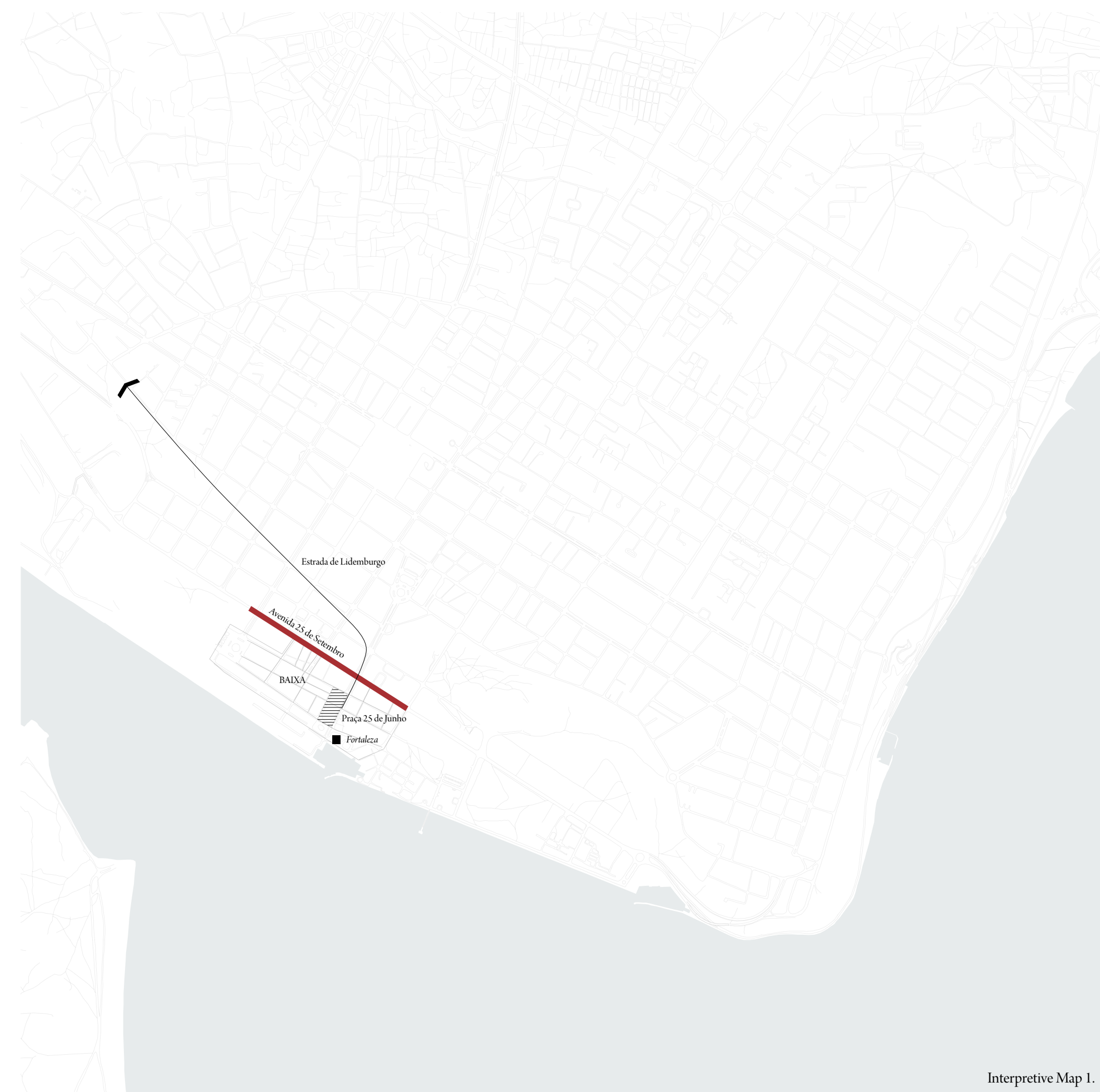
Three different points in planning time were chosen to illustrate the changing perception of the city. (see chapter 3.) 1887, the official time of Maputo being considered a city (‘Plano Araujo’), 1964, a travel guide just after ‘Plano Aguiar’. 2009, just after the latest ‘Plano Estrutura Urbana de Maputo’. The assessment in 2009 holds the final changes and tendencies that LM is undergoing resulting in again new focus points in the city, but in addition it can provide a summary of how a city is enriched by its different stages through its history. The dynamics of cantralities create a kind of spatial complexity that makes Maputo a unique carrier of many different layers of meaning. Maputo becomes metropolitan where everyone tries to and should be able to find a space to be, not only through the continuous adaptation of the center to meet the needs of a dynamic ever changing population, but also in the spaces that fall in between the so called meaningful ones.

901. Araujo-Origins

The city originates officially in 1887 after the obsolescence of older settlements founded by different enemy states of the Portuguese as the Dutch and the Austrians etc. It was actually the Dutch that

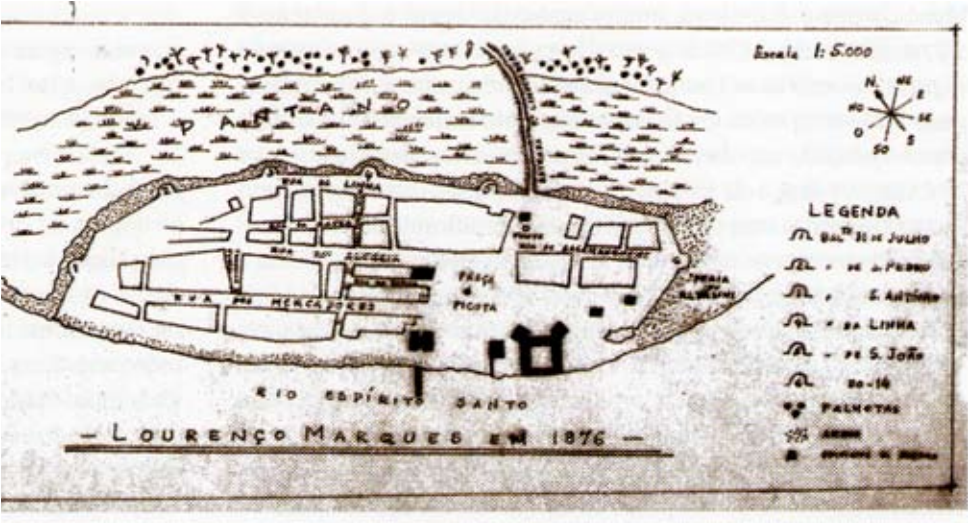
built the first so called fortress on the place where nowadays still the ‘Fortaleza da nossa senhora de conceição’ (Image 1.) resides. The fortress was conceived as protection against other colonizing nations as well as from the hinterland where native tribes for a long time resisted its white invaders. The boundary of the city was formed by the bay on one side and swamp low lying areas on the other side protecting the city at its best. The current ‘Baixa’ formed the city, now the colonial heart of the city. Its northern border was the current ‘Avenida 25 de Setembro’, the avenida that serves as the mental and mostly also physical boundary of the historic city, which can be considered afterwards as the limit that set the directional conditions for the following expansions.

The fortress and with that also the point of gravity of the city, lied close to the water on low lying ground. The Portuguese actually only intended in using LM as a jump point for their overseas explorations, trade routes to India. In the beginning, threats were more feared from the other colonizing nations, endangering the lucrative trading routes, than the natives living in the hinterland. This fear was partially justified since continuous battles between the different colonizing countries colored the past several centuries, but the Portuguese realized fast that it was absolutely necessary not to deny the presence of the indigenous people to avoid unnecessary uprisings. They started to mingle with them. The trading nature of the Portuguese also drove them to establish contacts deeper in the hinterland. This not only aimed to develop contact with native tribes, but also



Interpretive Map 1.

Historic Map 1.



to link with new developing provinces as the Transvaal in South Africa, accentuating the necessity to establish good relations with the local inhabitants of the Lourenço Marques area. (Historic Map 1. and Interpretive Map 1.)

‘Estrada de Lidemburgo’

After the first settlements had been established and consolidated (there had been some destructions before leaving no lasting heritage), the first road outside the original walls of the city was constructed, still before 1887: the old route to Lidemburgo (Lydenburg) and the Transvaal. (Historic Map 2.) The road started from the walls in the north of the city and was oriented towards the Praça 25 de Junho (Image 2.) and the fortress confirming its importance as the center. This connection was used by the first adventurers crossing over from the Transvaal in South Africa, current Gauteng province to Lourenço Marques. The travelers left with a large group in 1835 and only the group of Louis Tregardt finally made it to LM 3 years later in 1838 (more about it in chapter 10).

The importance of the central square was visible in the ‘Estrada de Lidemburgo’ as well as in the development succeeding the ‘Baixa’. The extension leaving from the central square, if seen now, is still oriented according to the fortress as was the road to the Transvaal. This axes connecting up to Transvaal then became the collector of some important buildings. Over time would be constructed: the

Historic Map 2.



‘Praça da Independência’, (Image 3.) ‘Gil Vicente’ theatre complex (Image 4.) , ‘Casa de Ferro’ (Image 5.), ‘Jardim Botânico’ (‘Jardim de Vasco da Gama’ before, now ‘Jardim de Tunduru’ - Image 6.) and other buildings that breaths colonial atmosphere in the city. The buildings show the way that investments in the city were concentrated around this axes.

‘Cidade dos Eléctricos’ (‘Tram City’)

The city grew by expanding its grid and changing its rules. The street width and block size became larger. At first the orientation of the grid expansion was imagined to follow the orientation of the ‘Estrada de Lidemburgo’, but soon after the ‘Avenida 25 de Setembro’ became the reference axe for the Araujo Plan (still 1887) (Historic Map 3.). The road was parallel to the hardened and straightened bay edge, abandoning previously important elements that were not conform the new grid. ‘Praça dos trabalhadores’, (Image 7.) till then just considered the outer end of the ‘Baixa’, whether it was intentionally or rather coincidence, fitted well into the new urbanization plan for the city. It revived as the railway end point. The new grid and railway growth would trigger the importance of the square in later times (see 92. Travel Guide).

During this expansion of the city, the fortress square remained the main important ‘Praça’ of the city. Although the construction of the railway at the end of the 19th century slowly eroded this dominant

Image 2.



Image 3.



Image 4.



Image 5.



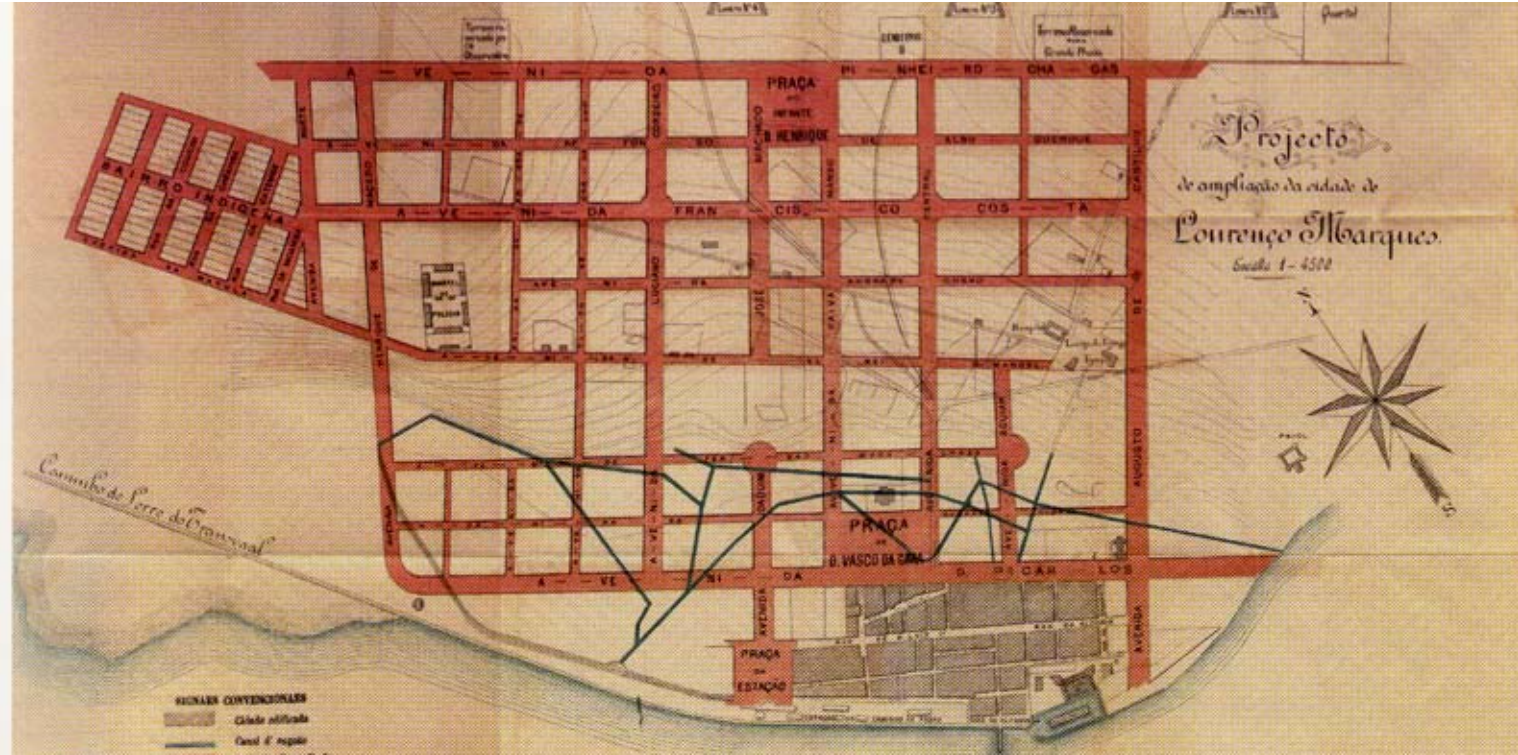
Image 6.



Image 7.



Historic Map 3.



Historic Map 4.



Image 8.



Image 9.

position. The connection Avenida Samora Machel between 'Praça de 25 de Junho' and 'Praça da independência' (Interpretive Map 2.) became the collector of public activities. The epicenter of the city moved uphill together with the expansion. The point of gravity moved and creates a more complex urban structure. The grid structure was projected on top of the city as future image. As said before defined by the Araujo plan, later delineated by the radius road (radius of 2017 meter) (Historic Map 4.), separating the native settlements from the colonial city. Together with the grid the tramway structure was introduced that accentuated the image that the Portuguese wanted to superpose onto LM: Lisboa. (Image 8.)

The trams only drove for a short period of time (overall, with ups and downs, from 1900 till 1938). They were decommissioned in 1938 due to lack of finances (they were too expensive). The superposition of the tram routes shows that the main artery of the city the current 'Avenida Samora Machel' was as the confluence of the tram routes, and also shows the change of importance in the square configuration of the city: a special tram extension towards the railway square, 'Praça dos Trabalhadores' opposed to the lack of a tram route passing the former central square of the city. (Interpretive Map 3.)

Except for showing the change that occurred in centrality in the city, the tram routes also show the particularity of elements outside the grid. Although the grid area was the center where all trams, cars etc.

would come together, the tram extensions reached further showing two different insights. First is the fact that there was a tram route on the litoral and the parallel to the litoral on the height part of the city. These lines connect elements mostly purposed for a small rich part of the population. The decommissioning of the trams afterwards caused by a lack of resources and the high prices, should not come as a surprise. The target population, mostly upper class, does not seem to have been balanced out.

On the other hand, where the east was very well connected, the west also had a route which did not exceed the limits of the 'Cimento' centre, but it did reach the edge where today still an important indigenous market space dominates the area. Obviously the terminus of the tram route generated an interaction platform that resonates till today. (Image 9.)

The tram routes plan makes a smooth transition to the second snapshot in 1964, when a travel guide of Lourenço Marques was published. Talking about one gravity point was beginning to lack validity as a statement since several elements started claiming importance, illustrated by the tram routes plan: the east west oriented avenidas are commencing their claim of the city and will do so increasingly.

As new places adopt the attention, others loose or are reduced in importance. In fact, they change character and fit into the city according to other dynamics. Where the expansion of the city drags



Interpretive Map 2.

Historic Map 5.



along the economic wave of investment, the remnants of the previous investments become detached from the market forces, opening up to other layers of the population that have the chance to benefit from the conditions that were created there earlier.

902. Aguiar-Independência

The travel guide of 1964 is considered to represent the perception of the city and the places considered more important, albeit from a colonizer point of view, after the 'Plano Aguiar' in 1952-1955. The first plans for the city showing more than just the 'Cimento', the concrete built central area of the city for the colonizers, but also showing the outskirts, the 'Caniço' or reed houses area (reed to be able to remove when the 'Cimento' would expand), date back to 1940-1941. (Historic Map 5.) This important change of idea about Maputo reflected into an appreciation of the north south direction. The perpendicular direction to the east west Transvaal connection began to balance the city's orientation. The grid, that has the characteristic of equalizing the perpendicular directions to an isotropic movement, was mostly dominated by the east west. Till today this is the case, questioning the isotropic state of the gird. With the changing image of integrating the 'Caniço' as part of the city, this battle for most important direction was becoming a bit more balanced.

By 1964, the 'Praça dos Trabalhadores', before 'Praça MacMahon' (MacMahon, creater of the name 2M, one of two most famous

beers in Maputo) had taken over as dominating square in the city, although it is ex-centrally located in the 'Baixa'. The railway station 'CFM', 'Caminhos de Ferro de Moçambique', (Image 10.) designed by Gustave Eiffel dominates the square that serves as the take off point for some interesting tours through the city according to the 1964 guide. The different tours on their own show different important aspects of the city. Lourenço Marques is then already a well knitted patch work of interesting places.

The Antique Tour

Standing on the railway square the first observation made about LM that is still the main reason for its development: the harbor, it is interesting to consider the fact that the port area is located completely around the tissue, restricting the accessibility to the waterfront in the south of the city, the bay side, yet it does bring the city in direct contact with it. Obviously, the harbor was one of the most important aspects of the colonial city of the Portuguese, maybe even the most important. In chapter 10, a deeper analysis of its meaning for the city will be unravelled, putting it into the context of the southern part of Africa.

'Praça dos Trabalhadores', as mentioned before, is ex-centrally located in the 'Baixa', but still it formed the center element in 1964 because of the railway activity, the way it fitted inside the projected grid structure as first expansion of the colonial heart and because it

Image 10.



is still located in the colonial heart of the city (in 1964 Moçambique was still a province of Portugal and the 'Baixa' was always considered the more clear image of that dependency). In order not to forget where LM was coming from, a specific tour has been marked in the tourism guide that brings people back into contact with the antique colonial part of the city. As a sort of panopticum idea, the 'Praça dos Trabalhadores' is put forward as the convergence point of 3 actually more or less parallel axes. Following either of them puts you in the journey of experiencing the lifestyle of before with the narrow streets with buildings with columned terraces at the entrance, providing a cool shade for another 'Laurentina' beer, the locally produced beer, which was even exported from Moçambique to Portugal (together with 2M currently the most important beers in Moçambique). (Interpretive Map 4.)

As the following tour talks about real experiences and real opportunities of LM in 1964, the antique tour shows that the 'Baixa' over time has been deprived of its major activities and is loosing completely its attraction as vibrant outgoing area as it once was, which was enforced for sure by the independency of Moçambique since the 'Baixa' holds the strongest memory of the Portuguese invaders. The tone of the tour is nostalgic and does not pass on any opportunity to sketch the previous spatial environment and bring back people to imagine these times. An example about 'Praça 25 de Junho':

Image 11.



'Let us briefly recall the life on this square during the first quarter of the Century. In the center was a bandstand, after the style of 1900, with a military band playing contemporary music. Spacious Kiosks, remarkably well equipped, served the most expensive and choice drinks, and also appetizing golden toast of delicious bread together with excellent tea and coffee. Comfortable bamboo chairs and tables transformed the middle of this spacious square into a pleasant esplanade. Here, the population of the small town gathered for friendly conversation which was not lacking in witty comments on contemporary events. The women in their Parisian dresses, waspe-waisted, with wide-brimmed or close fitting hats, according to fashion, carrying elegant silk parasols and wearing mittens of Irish lace; the men in cotton or silk suits of impeccable white, wearing gardenias in their lapels, straw hats of the type favored by Chevalier, and with imposing mustaches after the 19th century style, carrying gold-headed walking sticks. This was the atmosphere of this memorable square.' (Lourenço Marques Guide, 1964) (Image 11.)

The square has now lost these different aspects that once colored it, the famous kiosks being one of the most profoundly spoken about s of which many could be found before, but in 1964 all gone. As the building delineates the square, the edges between building and squares becomes quite strong, yet the use of the kiosks brought a grey zone of where building and square would start and operate. So they became disguised entities that improve the functioning of the square by making spaces more fluent in the way they are experi-



Interpretive Map 3.



Interpretive Map 4.

Image 12.



Image 13.



Image 14.



Image 15.



enced.

From there the tour turns up to the old extension road once the ‘Estrada de Lidemburgo’, to conclude the tour on the ‘Praça de Albuquerque’, now the ‘Praça da Independência’ with holds not only the City Hall (Image 12), but also the cleaning product white modern cathedral of LM (Image 13.).

The Long Tour

‘Praça dos Trabalhadores’ does not only serve as terminus for the railway line, but in 1964 it is also the turning terminus for all the busses. The wide spaces around revolving lanes with at its centre the monument remembering the First World War lends exceptionally well for this function, the modern transfer hub. Close-by lies the ‘The ‘Avenida 25 de Setembro’ as edge bundles together several meanings of differences: high and low city, sea orientated or inland orientation, early narrow street colonial to late rational 150 meter by 150 meter grid colonial etc. Because of its loaded mental state, it houses many important attractions and important symbols in the city. It also gives access to the perpendiculars that now penetrate the indigenous ‘Canico’ area. In that sense, the Avenida starts to be the ideological union of differences throughout the city. Some symbols on the avenida: the municipal market (Image 14.), which is the result of reshaping ‘Praça Vasco da Gama’. A railway building like structure forms the entrance and similar architecture borders

the square to shape the protected commercial area. Scala tearoom (Image 15.) and theatre (Image 16.) breath the outgoing city that Lourenço Marques was known for (Rio de Janeiro of Africa), the post office (Image 17.) and across the street the tearoom Continental (Image 18.) serves the Portuguese sweets and coffee, supposedly the best of Lourenço Marques at the time.

The tour then focusses on a never before mentioned part that also illustrates this city of differences and starts to show the effect of the ‘Plano Aguiar’ that takes the north eastern part as an important development. As the Avenida 25 de Setembro continues, it glides into the ‘Litoral’, (Image 19.) the waterfront road that has taken the place of the harbor where the water is no longer the protected bay, but the open sea view. A beautiful coast line has been set up that disconnects completely from its surrounding because of the existing topography. The enormous height difference between waterfront and inside city creates two different conditions. (Image 20.) On the higher part of the city, the more rich development is happening with the house of prime minister being the summum of the area called Polana, this makes the eastern edge of the city quite polarized and this also spills down like a waterfall towards the waterfront where luxurious yacht clubs, naval clubs (Image 21.), restaurants like ‘Costa do Sol’ (Image 22.), hotels as ‘Hotel Polana’ (Image 23.) and beaches find their ideal spot at the sea front. As Avenida 25 de Setembro, which has a profound meaning for the city, weaves together several interesting symbols, equally so does the continua-

tion, the ‘Litoral’, connect all these leisure areas with their on spot at the sea, together, with the ultimate leisure spot presumably one of the brightest of all being the restaurant ‘Costa do Sol’, known for its amazing seafood and already almost 10 kilometers away from the city centre. The relation that was made between all these buildings shows the impact of the ‘Plano Aguiar’ where those points would be incorporated in the proposed urbanization scheme.

The Transition Tour

The Transition tour makes the transition between the snapshots in 1964 and 2009 and marks elements that will gain importance. Leaving from ‘Praça da Independência’ this time, the tour continues in eastern direction along ‘Rua d. Radio’, named after the modern ‘Radio Clube de Moçambique’ (Image 24.) facilities. The street continues into the ‘Avenida Patrice Lumumba’, the upwards going alternative to the ‘Avenida 25 de Setembro’ that goes down to the ‘Litoral’, so the tour goes on the higher side of the height difference with at a certain interval some interesting buildings as ‘Hotel Girasol’ (Image 25), ‘Parque Silva Pereira’ (Image 26.), ‘Salazar High School’ (Image 27.) and ‘Dr. Alvaro Castro Museum of Natural History’. (Image 28.)

From this road two Avenidas start that are emerging as important elements: ‘Avenida Pinheiro Chagas’, now ‘Avenida Eduardo Mondlane’ (Image 29.) and ‘Avenida 24 de Julho’ (Image 30.), parallel to

‘Avenida 25 de Setembro’, but in the higher part of the city, running completely through the ‘Cimento’ to then cross to the ‘Canico’ and continue onwards to the outskirts of LM and finally Johannesburg. In 1964 they were still considered more peripheral so they saw functions attached to them as the hospital (Image 31.), old folks home (Image 32.), ‘Villa Algarve’ (Image 33.), the headquarters of the Portuguese secret police and syndicate buildings. They would change afterwards as these external elements were integrated completely and even became the most important axes of the city (see further) This list of monuments shows the prelude of a dynamic in progress where the centrality, although not located on those monuments, are in motion towards a new state around the roads.

The relatively new infrastructure could take functions that no longer fitted into ancient conditions. Also schools, churches, government departments etc. benefitted from the avenidas, as well as the roads perpendicular to them spun between ‘Alto’ and ‘Baixa’. Although east west direction had always had the upper hand, slowly this was changing and the grid, that did not work as a homogeneous isotropic grid, started functioning more on the bigger avenidas such as ‘Avenida Karl Marx’, ‘Avenida Vladimir Lenine’, leading to the river on the other end of the ‘Baixa’ of the railway square where the ‘Avenida Guerra Popular’ ends up. They have broad sections and well designed fast and slow lanes with attention to green and gain in that sense the same importance as the east west avenidas.

Image 16.



Image 17.



Image 18.



Image 19.



Image 20.



Image 21.



Image 22.



Image 23.



Image 24.



Image 25.



Image 26.



Image 27.



Image 28.



Image 29.



Image 30.



Image 31.





Interpretive Map 5.



Image 32.

The increasing activity along the avenidas and the improved connectivity towards them, make the centrality of the railway square unstable, yet defendable since the railway is an important factor. Yet, the railway will unfortunately loose its functionality and the glory of the 'Praça dos Trabalhadores' fades.

The independency of Moçambique as a country in 1975 of course had a lot of impact in this change through the city, but it was not the struggle for sovereignty that caused the temporal decline of the cities progress. In the years to follow, the void in power created a violent civil war between members of Frelimo and Renamo which only ended in 1992, leaving the city with a total lack of major planning organs. This resulted in a slow recovery process that could not keep up with the speed of decline due to lack of maintenance.

What's in a name

The street name changes that happened after the independency tell the story of Moçambique. Where before the streets would hold the names of Portuguese presidents, Moçambican governors etc. they would now all be changed into 3 different categories. The more obvious change was to replace the Portuguese names with Moçambican heroes, freedom fighters or others that aided in the cause. Three of them take an important part of that history: Eduardo Mondlane (Image 34.) was co founder of the 'Frente de Libertação Moçambicana' in 1962 with the aid of Julius Nyerere,



Image 33.

Tanzanian president of Tanzanian political party and second important name, but was killed in his office in Dar Es Salaam in 1969 by 2 members of his own party that had connections to PIDE, the 'Polícia Internacional e de Defesa do Estado'. Eduardo Mondlane was then replaced by Samora Machel, a South African, as head of Frelimo and became the first president of the independent Moçambique in 1975 till he lost his life in a plane crash in 1986. The second name change was very much related to this: references to important socialists. Frelimo was socialist of character, aided by the Soviet Union and for a long time socialistic marxism was the proclaimed orientation of the state, resulting in street names as: Karl Marx, Vladimir Lenine and Mao Tse Tung and some very interesting buildings from that time as the 'Cinema Africa', 'Edifício Rubi' and others. These names were giving to the street of increasing and relatively new importance. The north south axes and the east west avenida in the northern part of the 'Cimento'. The third change is related to important events in time, dates: 'Praça 25 de Junho', obviously one of the most important squares of the city, receives its name from the creation of Frelimo in 1962, but more importantly, and probably related to it, the independence of Moçambique. This event is if not the most important at least one of the most, pointing out the importance also of the Fortaleza square, but also the 'Praça Alburquerque' became known as 'Praça da Independência', confirming the axe between them to be a very important and symbolic place. Another important avenida as stated before is

Image 34.



‘Avenida 25 de Setembro’ which was the official start of the guerrilla war against the Portuguese in 1964 in the north of Moçambique (entering from Tanzania). More than 90 percent of the street names were changed which also poses the question of the reason for the ones that have not. It seems that if the street name can be recycled because of mutual interest - 24 de Julho, the day in 1875 that the French president Mac Mahon judged in favor of the Portuguese allowing them to keep the southern part of Moçambique, although the name of ‘Praça Mac Mahon’ was changed to ‘Praça dos Trabalhadores’ and 24 de Julho was also the day of the nationalization of health, education and justice in Moçambique after the independency - or because of the fact that also for the Moçambicans the name contains a cultural heritage. (Fernão Magelhães, world traveler and Consigliieri Pedroso, Portuguese folk story teller)

These name changes are mainly about confirming the new identity of the Moçambican people and the changing political conditions in the new bourne country. Its main importance lies not specifically in trying to determine the new centralities, but in showing a will to have as a new nation its own new dynamics.

903. PEM-Present

During the national conflicts, South Africa had always been very much involved in the politics of Maputo and Moçambique till the

end of the 80s when they agreed to stop mutual support that would worsen the internal conflicts in both countries (Apartheid in South Africa). This disconnection was seen also in the rail system where in 1964 the railway was still dominating, hence the ‘Praça dos Trabalhadores’ being considered the center of the city, after the civil war, the train system in terms of passengers completely collapsed and stayed practically inoperative till 2009.

Car takes over

The increase of the role of the car reaches Moçambique and investments are being guided towards the road infrastructure which reaches its peak in the beginning of the 21st century with the new highway between Johannesburg and Maputo. (read more about it in chapter 10), which end up in the 2 most important avenidas of today: ‘Avenida Eduardo Mondlane’ and ‘Avenida 24 de Julho’. The before so obvious centrality of the ‘Baixa’ is now surpassed by the car that finds the true colonial centre quite a jungle to maneuver through and enjoys the comfortable space of the 3 parallel avenidas in the city. (the 2 just mentioned and the always important ‘Avenida 25 de Setembro’.) (Interpretive Map 5.)

The avenidas, partially overlapping the ancient roads to the Transvaal, that before became loaded with more peripheral functions transform into collectors of the new central idea. Garages, wholesales, retail, bars, theatre etc. Along the stretch of the road

anyone can find his or her needs and the position of these elements depends on the polarization of the road according to the part of the city it passes. New expensive bars open on the corners of the avenidas in the ‘Bairro Polana Cimento’, cheaper pizzerias more towards the ‘Bairro Central A’. The building typologies are all very similar: a multistory residential unit or office building (with huge advertising on the side) with its commercial ground floor facing and spilling over on to the new public realm. The section of the avenida also contributes to the capacity to upload meanings. The central parking spaces or small divisions between lanes of opposite moving directions provides enough space for people to deliver their message to cars passing. Since the car offers the opportunity to prevent interaction with others in the movement from point A to B, these small spaces grown with the road still provide some chances of exchanges. For the people that do not have a car, the bus, ‘Machimbomba’ or ‘Chapa’, is the solution for moving around, making the points where people jump in and out crucial points of interaction. The road becomes a sequence of places.

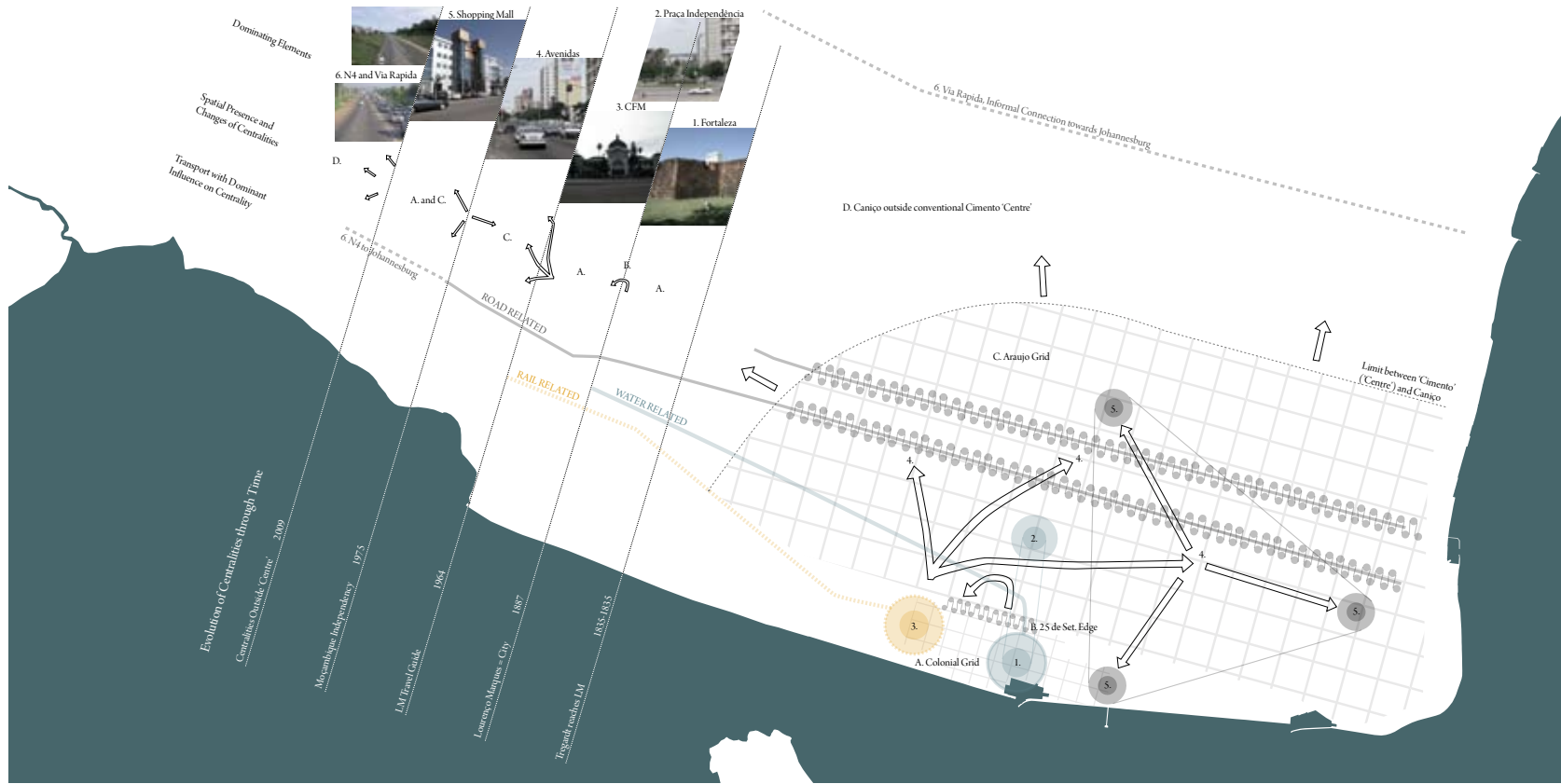
Typology change

This change has a very important consequence: the typology of the centrality is different. Once centrality could have been spatially considered a concentration of meaning on one space, the square (‘Praça 25 de Junho’ and ‘Praça dos Trabalhadores’). Now that space has been stretched and the public realm becomes

linear, drastically changing the interaction between people and redefining the interaction itself (now more between car, people), but it also allows more people to relate to it and moreover the space can be polarized by its surroundings. It is open and accessible for change and creative input. Where the square is loaded with so many meanings in one place which makes it very rigid for change due to the collective heritage connected to it, the road offers many different spaces. When people do not find what they are looking for, other and different elements can be found 100 meters away that could serve for his or her purpose. It reduces the level of meaning and interaction if focussing on a specific location, but in an analysis of the stretch it probably provides for all.

Theoretical discourse (Interpretive Map 6.)

A small overlap with Chapter 10. ‘From Johannesburg to Maputo’ explains in a way this dynamic of places of meaning and recognizes the importance of the relation between Johannesburg and Maputo. The first stage, the early colonial ‘Baixa’, was obviously oriented around the main square and the fortress, but soon after the road to the Lydenburg would become the background on which new identities and meanings could project. It made the mainly east west oriented ‘Baixa’ break in 2 because of the north south, downhill uphill, new directionality from which the City Hall and ‘Praça da Independência’ eagerly benefitted to overlook the ancient settlement, a symbolic place in the expanding city. Yet in the end of 19th



Interpretive Map 6. (see also chapter 3)

century the ‘Estrada de Lidemburgo’ literally defined the tracé for the new railway connection, the road made place for the rail and again the city underwent a change of meaning where grabbing on to the terminus point of the railway was the dominating tendency, charging and activating the western edge of the ‘Baixa’.

When the car made its entry and the railway gave up being an important player, the new road, now highway to Johannesburg again made its way in as defining the centrality to where it enters the city. So the gravity point of the city moved upwards as mentioned before and became linear of type. The link with Johannesburg where increasing pressure and presence of the car and the insecurity feeling is prevailing, is being projected on Maputo and this is again changing or trying to change the centrality of the city, which is actually a fake: the shopping mall is introduced.

The shopping mall as a ‘new’ typology of centrality and public space emerged around the avenidas as if a concentration of activities along the stretch was needed and if the shopping mall is considered the continuation or addition to the stretch that the road provides, it has its use and functionality as a space. One of the first shopping malls situated on ‘Avenida Eduardo Mondlane’ can be considered an interiorized public space with a lot of activities concentrated around it. Different nationalities, venders, bars, benches etc. can be found here and it does create a sort of complexity. Although obviously very commercially oriented, this space can be seen as a quite interesting

concentration of meaning as it does not filter which people can or cannot enter, but merely provides a vertical extension of centrality.

The safety issue influence from Johannesburg and the increasing distance between economic differences (lack of broad intermediate class between rich and poor) resulted in the second most known shopping mall: Polana shopping mall, still located along one of the avenidas (‘Avenida 24 de Julho’). The differences between the first and the second can be explained in the possibility of polarization of the centrality stretch, Polana being a richer neighborhood and the poorer Central A, where the first shopping mall is located. The stores are out of range for most of the population and therefore it loses most of its validity as a centrality. Although the shopping mall does mean something for a poorer class (mostly commercial), it cannot be seen as a confluence of people’s activities.

The dynamic of spaces that could be seen in the city over its evolution in time together with the image of the ‘Baixa’ as the past colonial center, in 2009 has caused an increasing neglect of the ‘Baixa’. It is the physical remnant of the past, but it also houses those activities that over time have been replaced by newer techniques or customs that find space around the avenidas. The ‘Baixa’ had in the eastern center the fortress, later the railway, after the emergence of the car, those spaces lost their previous meaning and grandeur.

The city of Maputo that read the shopping mall as a way of creating

activities, came up with the plan of creating another shopping mall in the ‘Baixa’ to counterbalance the lack of attention that had lacked the area for the last decades compared to before, trying to shake off its bad colonial image, but all they accomplished by doing so was creating a high friction zone between the social classes that were all of a sudden standing side aside. There is no problem in trying to create an interaction between social classes, but the shopping mall does not seem to be the device that can provide a qualitative meeting space.

This attempt to achieve an artificial lack has to be questioned since this ‘lack’ seems to make place for other activities, people, forces in the city that are needed. The same process has happened with the grid of the Araújo plan. The grid does not work in an isotropic way and some city blocks are not bordered perfectly allowing a certain permeability which is the result of a sort of disinterest by the market forces. Those places are inhabited by people that cannot afford a more generally accepted place of the city. It is this process that creates a social interaction between different classes which was once separated into ‘Cimento’ and ‘Caniço’. More and more these two areas are flowing into each other, creating a broad grey zone where everyone finds their spot.

Conclusion

The city was originally considered to be the ‘Cimento’ while little attention went to the ‘Caniço’, but in 2009 this idea of Maputo is completely surpassed by the expansion of Maputo and liberation of the center versus periphery stigma, questioning for example the perception of the ‘Baixa’. The area attracts poor, does not have the same waterfront qualities as other areas and has a low accessibility and car permeability, but the supposedly abandoned spaces have to be re-appreciated and the urban complexity still exists although the specific constituting activities have partially changed. Market spaces with typical Moçambican products appear around the fortress in the weekend, fish stands receive the freshly caught fish straight from the boats, ancient artifacts are gazed upon by tourists etc.

Although the evolution of centrality seems to leave behind spaces without meaning, they are still spaces that can be filled in again with meanings that the city needs in order to function truly, which leads to the conclusion that the city is no longer mono-central as different spaces in the city bundle different meanings resulting in a high urban complexity which will only increase and expand in the future (lead in for basic statement towards analysis and design of the roads).

More and more, the city center is becoming a multilayered entity that in itself carries a great diversity of places with meaning. Meanings that go beyond the traditional reading of centrality since the dynamics in time in fact create several types of places. The so called centralities change in typology, become spaces for the opposite side of the market or change character according to important changes in the city. These changes create a completely different city center than in colonial times when there was a clear distinct limit between center and outskirts. Nowadays the dynamics of change create access for all different classes of the population albeit in around centralities, in former centralities or in between.

The idea of centrality is therefore also no longer limited to the former city center and as the city expands places of meaning start appearing outside the center as well which is rendering the city increasingly homogeneous while the former limit dissolves.



Monument in the city centre, on the place where Treghardt's party was burried. When discovering this place only by overlaying historical maps, it results in a goose pops moment.

Map



Chapter 9. From Lourenço Marques-Transvaal to Maputo-Johannesburg

The relation between South Africa and Moçambique has always been a defining factor in the development of the city translated in a fragmented legacy and nowadays still in a very close relationship of all kinds. This chapter will shine a light on this relationship over the course of time and on what the effects are of the current relationship.

Maputo was conceived as the jump point for the Portuguese and thus primarily influenced by the connectivity it can portray towards the sea, being strategically located in the bay. With the increasing importance of Moçambique as a providing entity for Portugal, it was understood that also land inward relations were to be established to be able to benefit from the richness of the colony for which its optimal location to organize port activities remained a huge advantage for the development of the city.

The English-Portuguese alliance formed in the 19th century enabled both of them to confirm their possessions in the Southern part of Africa and to even forge a new bonding between Moçambique and the northern and rich Transvaal, now the Gauteng province in South Africa. (Morrais Sousa, 2001) A brief jump back in time:

the rise of liberalism and the independence of Brasil in 1822 induced major changes in the overseas possessions of the Portuguese, on administrative as well as mental level. The attention for Brasil was fully diverted to the African colonies which were to become

Historic Map 1. Railway Map from 1906



the ‘new Brasil’. This transition was slow because Portugal found itself in a depression in colonial terms after the independence of Brasil. In 1838 a new constitution included more local and regional power for the overseas colonies, but especially the second liberalism brought along a major alteration of the territorial conditions clearing the path for the locals: the extinction of slavery.

The new policy and enthusiasm would intensify the communication between Portugal and its colonies. In combination with the technical improvements made by the ‘Ministerio das Obras Publicas’ in 1852 which had the ambition of facilitating the communication between the different regions in the country, a prosperous future was predicted. Investments in the colonies were still limited caused by the nature of the expansion of the Portuguese. It was not based on a natural expansion out of economic and technical point of view, on the contrary, only a small part of the population could be considered driving this voluntaristic pursue. (Morrais Sousa, 2001)

Andrada Corve, states person, was one of the souls of the regeneration of the Portuguese empire. He saw the solution of the economic depression and colonial crisis in creating allies and further reinforcing the relation between mother country and colonies. Under Spanish influence, an ‘Iberic’ union was considered but put aside for an Anglophile solution since England was and would be for much longer the most powerful maritime power.

Portugal and England, old allies, confirmed their former state of friendship which immediately left them with the huge responsibility to develop the African continent where they were actually neighbors. The alliance would enforce Portugal’s position in the south its prosperous effect, similar to the ideas of Andrade Corva, was spatially projected by Joaquim José Machado, engineer and working for the ‘Ministerio das Obras Publicas’. Warehouses, arsenals, roads etc. in different provinces spread in Moçambique. The position of Portugal in the world was strengthened and in addition the exploitation and integration of the colonies grew. The life work of JJ Machado was the physical representation of these two benefits: the railroad connection between the Transvaal and Lourenço Marques, projected on top of the former ‘Estrada de Lidemburgo’. (as an honor for him having made the railway across such violent lands, they made a village named after him, Machadodorp, in between Nelspruit and Maputo - Image 0., Historic Map 1.)

His successor, Antonio José de Araujo, continued the railway project and at the same time created the ‘Plano Araujo’, the first planned expansion of Lourenço Marques which lifted it to the state of city on November 10th 1887. The creation of the railway had been postponed over time because of the inner struggle between the Boers of the Transvaal and the British Empire, but over time and after an intervention of the French president MacMahon, the tensions diminished and the fruits of the collaboration could be harvested.



Image 3.



because of the vicinity of the height difference towards the river where formal housing tends to stay away and new developments that slowly change the economic shaded character, schools, offices, some retail. It is the connection that shows most of its former state of importance in the connection outside the city.

The second one is mapped between 1909 and 1910 and portrays a completely different side of connectivity, but very relevant: the economic value of the connection and the activities related to it. The continuation of the 'Avenida 25 de Setembro' runs along the railway area, one side of the connection is made up of the vast railway emplacement, bordering the rail related activities. Although there was no direct railway accessibility for the other side of the road, the proximity of the industrial movement created the platform for many large scale processing facilities, companies. The presence of the height difference behind these activities protected them from intrusion of small scale urbanization causing the area to retain its original character., although there are some vacant plots nowadays that could be retaken.

With the continuous changes the city was undergoing, the ever increasing rate of expansion, the connection to the west was moving up north together with city. Originally, the 'Avenida Eduardo Mondlane' continuing into the 'Avenida do Trabalho' was the main connection, following the same orientation as the one mapped in 1894 and continued to be till the improvement of the current N4

connection to Johannesburg. One other connection claimed importance noted in 1938 (Zilhão, 1938), the 'Rua dos Irmãos Roby' was mentioned as a connector, but it cannot be seriously considered since it was never spatially valid. It can rather be seen in the perspective of the upcoming importance of the suburbs the road services, which in fact resulted in the 40s into the first plans that incorporated the areas outside the 'Cimento'. The link with South Africa, 'Avenida do Trabalho', 1915, also became the link between the centre and the increasingly important outskirts and some important development show the remnants of the grey zone along the axe where not only the tissue changes and forms the feel-able transition between 'Cimento' and 'Canico', but functions can be found that form an interaction between different classes: a multistory living unit designed by Pancho Guedes, one of the most important market areas of the city and a social food provision centre causing daily gatherings when the food is being distributed to the ones that need.

All of the before mentioned connections form the border between the centre and outskirts and create a special transition between them. This grey zone was mostly located around the radial, always considered the border, but started moving out more with the growing connecting importance of the 'Avenida do Trabalho' and with the future changing conditions of the connection to Johannesburg, the conditions related to the road will as well.

Historic Map 3. Plan of Johannesburg from 1897, ‘Ferreira Town’ one of the neighborhoods



Nowadays, the N4 is the official connection to Johannesburg, ending up in the ‘Avenida 24 de Julho’.

1002. Maputo Development Corridor

The N4 toll road is part of bigger whole: the Maputo Development Corridor, created to reinforce the economic activities in the region between the two cities of Maputo and Johannesburg. The project was initiated in 1994 and the first step was re-establishing the broken railway link. In 1995, the ground rules and basic ideas were put out and agree upon for a number of projects that would increase the role of the corridor on world scale. Unlocking the landlocked regions of the Mpumalanga, Gauteng, and Limpopo Provinces, the Maputo Development Corridor is a true transportation corridor. Comprising road, rail, border posts, port and terminal facilities. The Corridor runs through the most highly industrialized and productive regions of Southern Africa. Gauteng, “Place of Gold”, has traditionally been the largest gold producing region in the world. Nowadays Gauteng is the engine of the sub-continental economy and produces ca. 40% of South Africa’s GDP. As an industrial powerhouse, Gauteng is responsible for the highest concentration of manufacturing and industrial production in the country. Via South Arica’s capital city of Pretoria, located in the greater Tshwane Metropolitan Municipality and including Centurion and the country’s largest concentration of vehicle manufacturers at

Rosslyn, the Maputo Corridor connects South Africa’s industrial and commercial heartland of the Witwatersrand, comprising of the metropolitan areas of Ekurhuleni on the East Rand, Johannesburg and Mogale City Municipality (incorporating Krugersdorp) on the West Rand, with its nearest deep water port in Maputo, Mozambique. (Söderbaum, 2003)

A number of infrastructure changes were needed to modernize the functionality as a whole. As mentioned, the railway was reconnected and improved, but the dredging and modernization of the Maputo port was delayed because of slow implementation process on the Moçambique side. This caused the advantage of the increased capacity to be lost for some years, although the rail concession never really completely got from the ground after repeated pull back from different actors involved, mostly from Moçambican side.

Over the course of time, more and more changes were implemented: a new harbor docking in the Machava area, oil pipelines and especially important due to the struggles for the rail concession: the N4 road concession given to TRAC (Trans African Concessions). TRAC was commissioned the construction and maintenance of the new toll road connecting Maputo and Johannesburg that drastically changed goods and person movement between the countries. The four lane connection provides the necessary infrastructure for the economic requirements to make the corridor work. Toll houses, gas stations, increased border crossing capacity etc. (Image 3.)

Image 4.



The strong corridor that was developed and is still developing seems to be fulfill its expectations, but raises questions of how the smaller scale elements cope with this XL change, spatially as well as economically. The road was designed on a certain existing tracé in many cases causing the alteration of the road profile and the way the local activities were organized around the road. Yet, in economic terms it is not clear of what the contribution of the Corridor is for the local economic player.

1003. Lourenço Marques - Transvaal Fragments

The relation between Lourenço Marques and Transvaal did not only have influences on the spatial configuration of Maputo, but also left spatial remnants along the path from the moment the Portuguese English relationship was strengthened early in the 19th century. The Victorian architecture style blew over from Transvaal to Lourenço Marques, introducing the iron columns of the front porches with cement foundations which substituted the traditional wooden porches, in reverse some Portuguese architecture, very much like Villa Algarve, could be noted in Johannesburg as well as some ‘barrios’ with Portuguese names showing the presence of migrated workers. (Historic Map 3.)

Except for spatial influences there were also other influences that did not specifically formed the territory between Johannesburg and

Maputo, but did have an influence in the way it is perceived today. João Albasini was a trader arranging all sorts of border traffic which started with the attraction of the wildlife. The inhospitable and dangerous inland became an attraction to tame and Albasini’s hunting parties wiped out the elephant population in the once heavily forested area for their lucrative value for cross border trade. The activities resulted in 1898 in the creation of the protected wildlife park by president Krüger, ‘Krüger Park’, that today is one of the most important game wildlife reserve parks of the world. It forms the border now between Moçambique and South Africa. (Image 1.) On the eastern side of the park, remnants were found of a settlement that belonged to the group around Albasini and the activities he was carrying out there. An entrance of the park in that location inherited his name. The game tourism was already very much present in the colonial Moçambique since Portuguese could find conditions unfamiliar to home. The exploitation of it in the end resulted in the major destruction of the environment they sought out. This tourism is still very present and a trip Johannesburg to Maputo with a few days stop in Krüger park is a very popular. João Albasini was appointed vice-consul and played an important role in the political balance between the English and the Portuguese during the 19th century. A dam was called after him in the Limpopo area, showing that he was also appreciated by his neighbors. Trade was set up very early and intensified with the railway project between Lydenburg and Lourenço Marques implemented under the governance of JJ Machado and the relationship seemed to thrive

Image 5.



untill the day of the Moçambican independency in 1975 when the railway connection was cut up at the border. Officially relations between the two countries became more difficult and complicated because of the struggle for power and at the same time balance in Mocambique. Renamo was supported in its war against the socialist Frelimo while Renamo aided the Apartheid cause. All of this ended officially only in the year 1990 which opens up new possibilities in the end of the 20th century and beginning of the next.

1004. Present Mutual Benefits and Downsides

The relationship between Maputo and South Africa nowadays is still very alive and vibrant on different levels of society. Because of the improved connectivity between the two, the traffic has increased in both ways. Moçambican workers often travel abroad to South Africa to find better wages or work all together, staying there for months in a row to provide for their families. In Johannesburg around Park station, there is a Moçambican neighborhood which basically specialize in auto mechanics since park station is the major taxi rank area and bus terminal for long distance travel. Moçambican traders and market spaces can also be found in this vicinity. (Image 4.) The richer part of the Moçambican population crosses the border to find the quality of services they cannot find in their own country such as medical care.

The South African interest in Moçambique is double. On the one

side, Moçambique is and will be for a while a quite virgin holiday resort and attracts a lot of tourism, especially with its many kilometers of beaches and diving possibilities. (Image 5.) On the other hand, Moçambique is attractive for investment and setting up some businesses that benefit from the lower standards of the country and can profit from a rich upper layer of the society. The larger supermarket chains in Moçambique are mostly South African and many diving resorts were set up and are run by South Africans. The also cause a large migration of South Africans like a snowball effect due to the affordable local prices.

The traffic between Moçambique and South Africa is highly polarized and creates some tensions that are very understandable in the sense that the Moçambicans do not completely control the development on its territory. Although there is investment into the Moçambican economy by the South African activities, the fruits are only loomed by few. It is therefore important for Moçambique to strengthen its position in terms of foreign investment to be able to direct the incoming flow to serve more than just the upper class.

With the Maputo Development Corridor it is obvious that the dependency of South Africa will not be diminishing, but increasing. The very close collaboration for the project should be able to balance the revenue and create a positive momentum for Maputo, if the specific global organization of the Development Corridor can be blended together with local needs.



Fieldwork in Maputo captured in one shot. The yellow cabins as objects of investigation made reachable by the bike. Many trip up and down the roads leave an un-erasable mark in the memory. If not because of the different conditions

that define the state of the roads, it would be because of the many Moçambicans sheering, clapping and motivating me with thumbs up. I made unknown friends as they started recognizing me day after day.

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*Estou Muito Obrigado a
Many thanks to*

*Promotor Bruno de Meulder and Co-Promotor Fabio Vanin.
Ana. (e a sua família)
Mijn ouders, Sven, Iris, Ward en Tom.
A minha família Moçambicana: Julieta Massimbe, Nuno Uamusse e
Selma Uamusse-Van Nespen.
Professores Luís Lage e José Forjaz, da Universidade Eduardo Mond-
lane em Maputo.
A Cidade de Maputo.
My fellow students in particular Makarand Salunke and Tiffiny
Hodgson.
VLIR, Vlaamse Interuniversitaire Raad.*

Image from busdrive on the trajectory Maputo-Johannesburg, part of the Trans African Concessions

